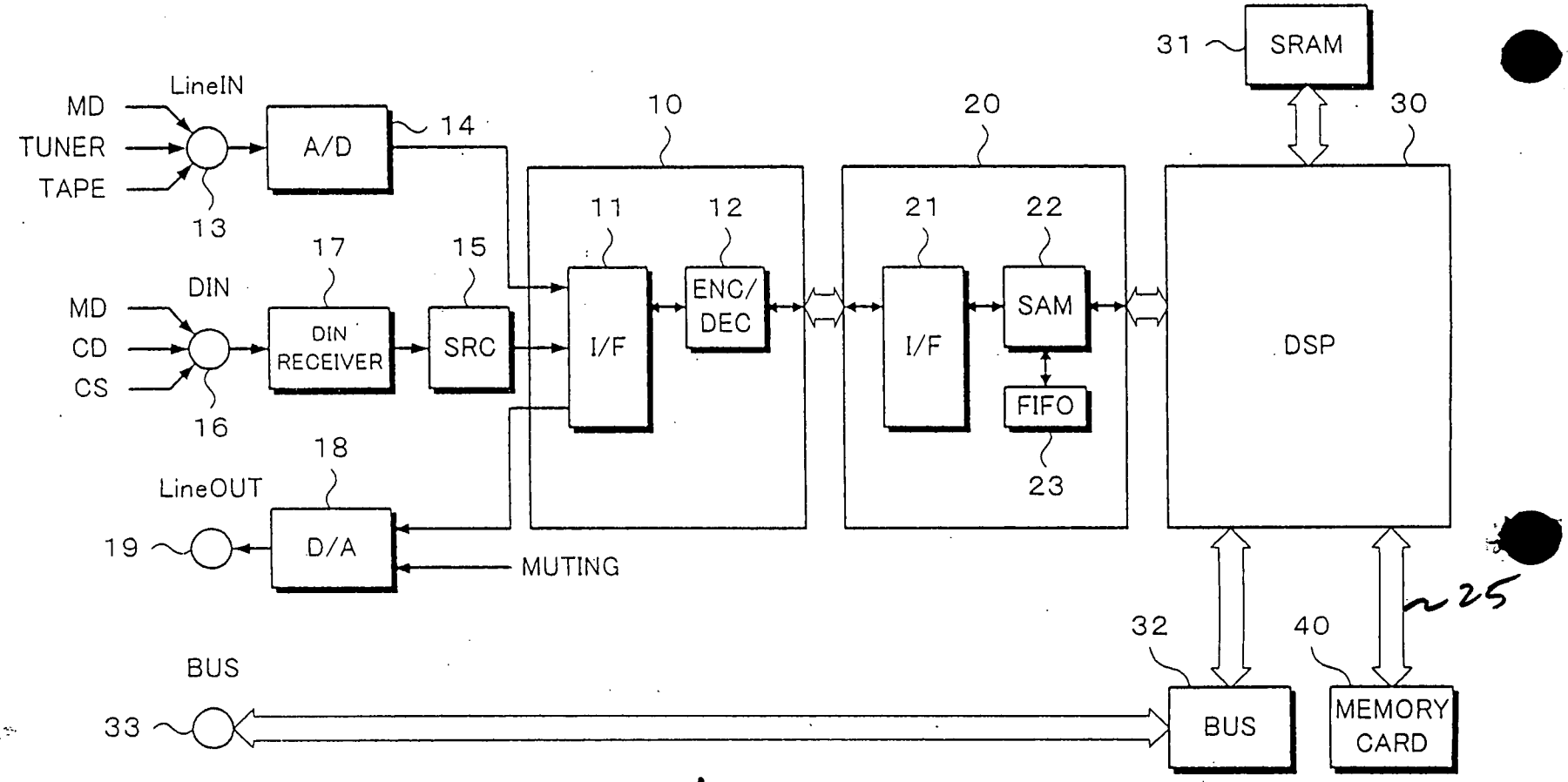
08420 E0056560

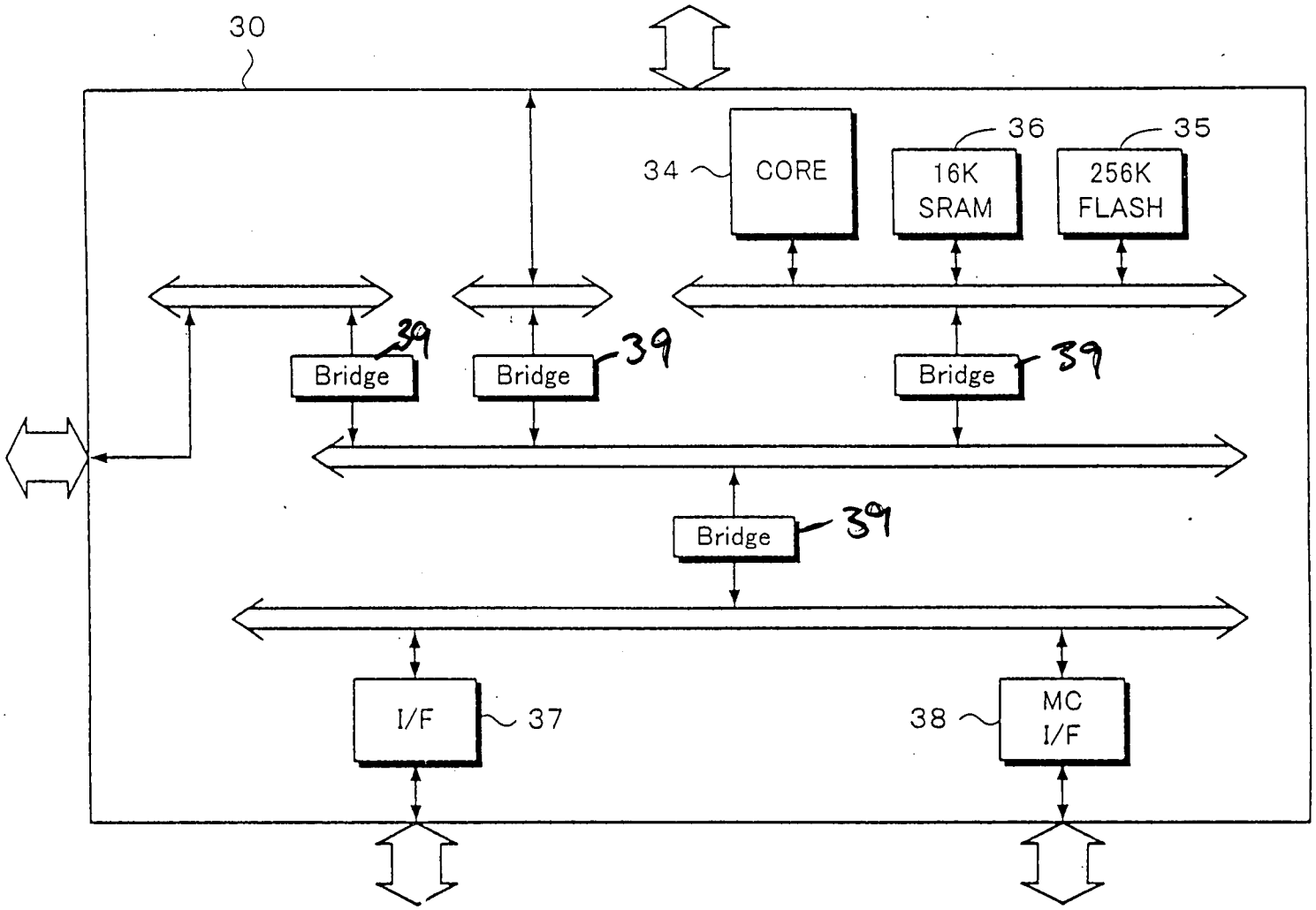
Fig. 1



1

00+250'600S6560

Fig. 2



00h250" 5005t960

To Recorder/Player 1

Fig. 3

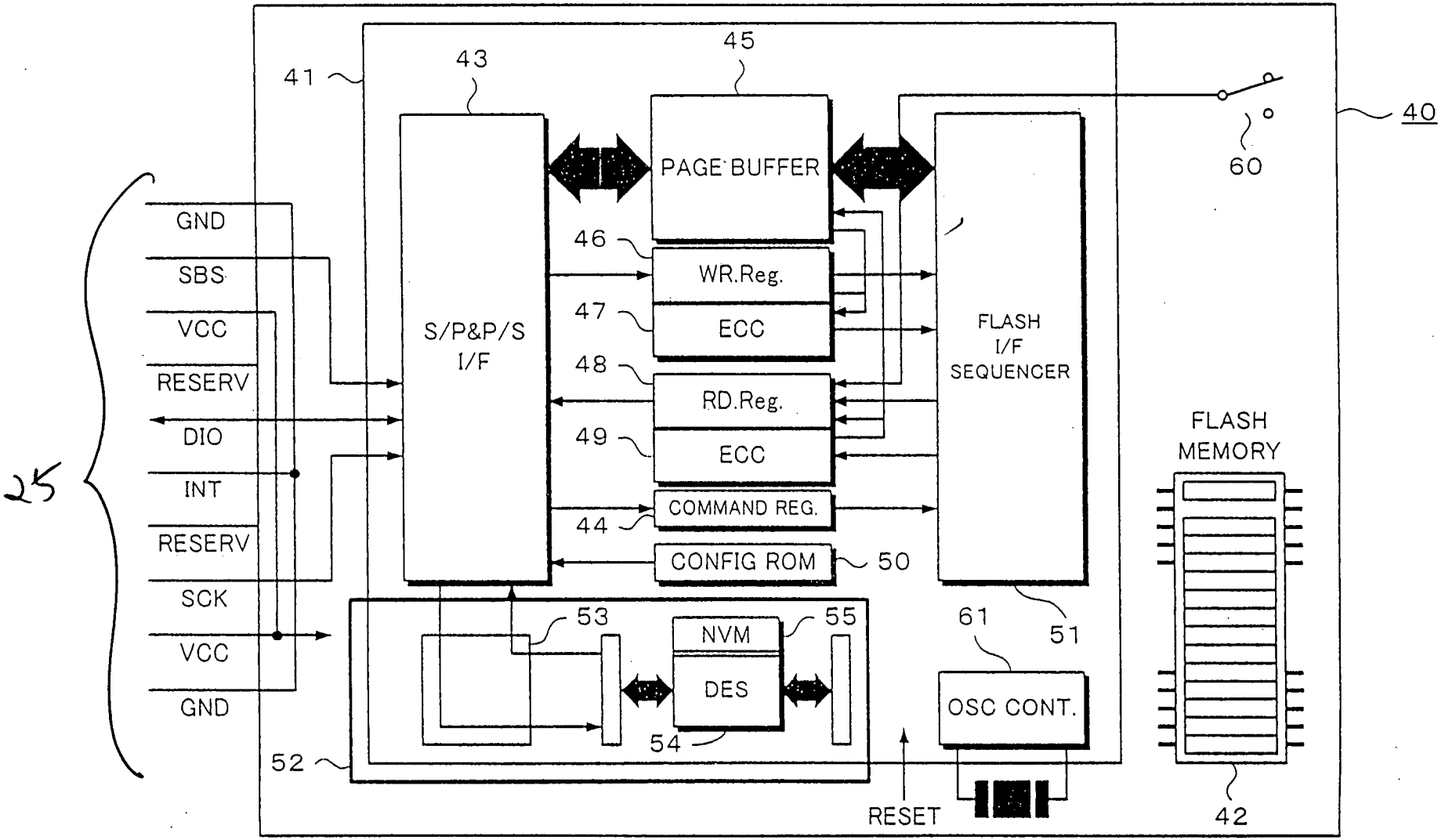
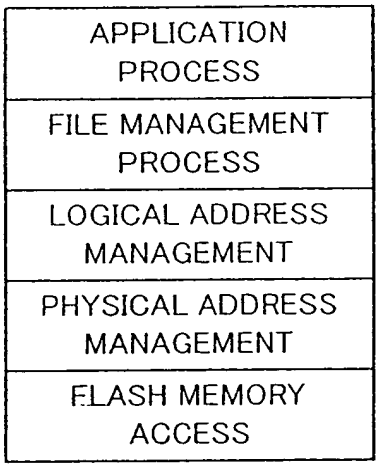


Fig. 4



FILE SYSTEM PROCESS HIERARCHY

Fig. 5

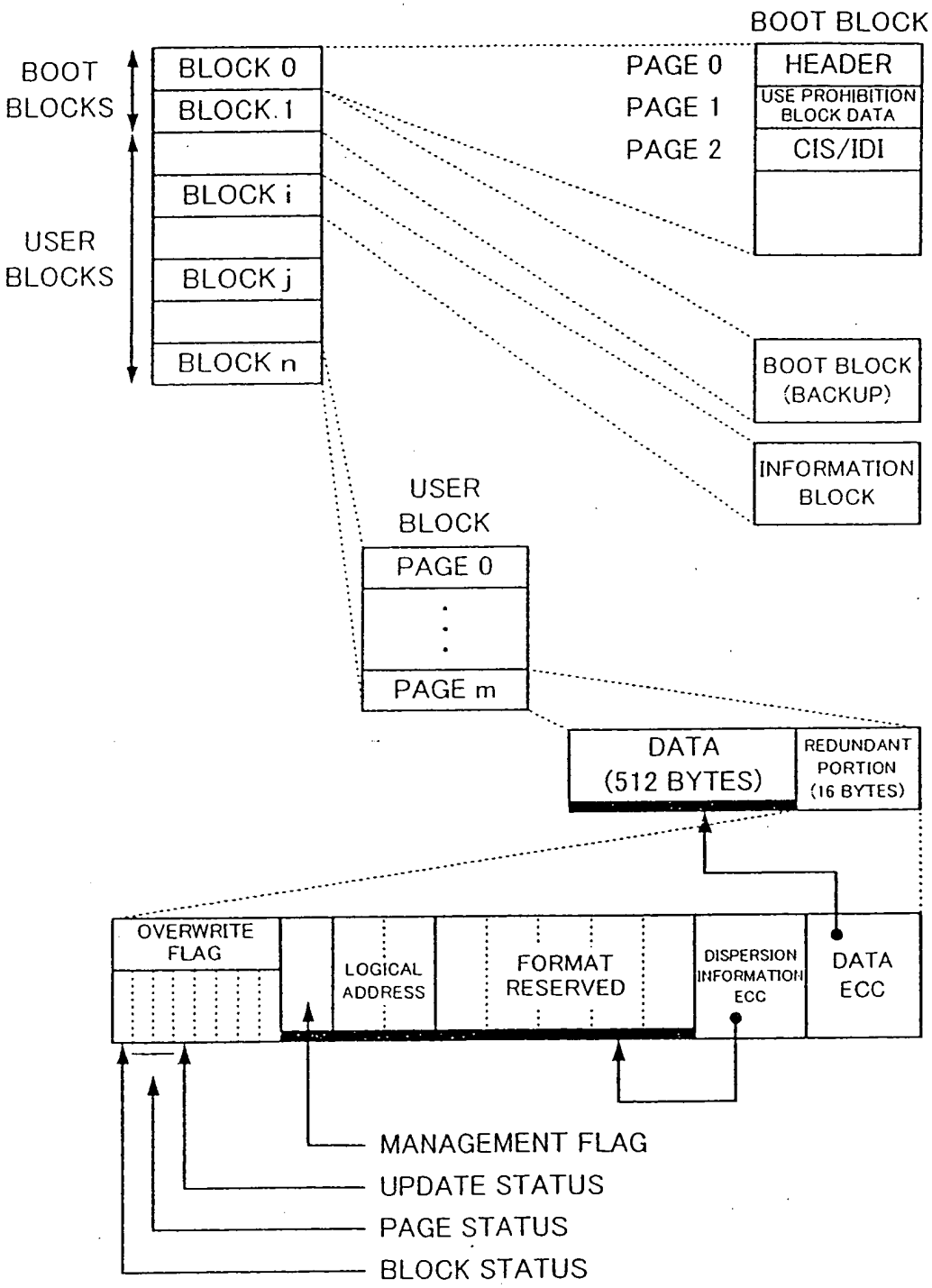

BOOT BLOCK
BOOT BLOCKS
BLOCK 0
BLOCK 1
BLOCK i
USER BLOCKS
BLOCK j
BLOCK n
PAGE 0
PAGE 1
PAGE 2
HEADER
USE PROHIBITION BLOCK DATA
CIS/IDI
BOOT BLOCK (BACKUP)
INFORMATION BLOCK
USER BLOCK
PAGE 0
PAGE m
DATA (512 BYTES)
REDUNDANT PORTION (16 BYTES)
OVERWRITE FLAG
LOGICAL ADDRESS
FORMAT RESERVED
DISPERSION INFORMATION ECC
DATA ECC
MANAGEMENT FLAG
UPDATE STATUS
PAGE STATUS
BLOCK STATUS

Fig. 6

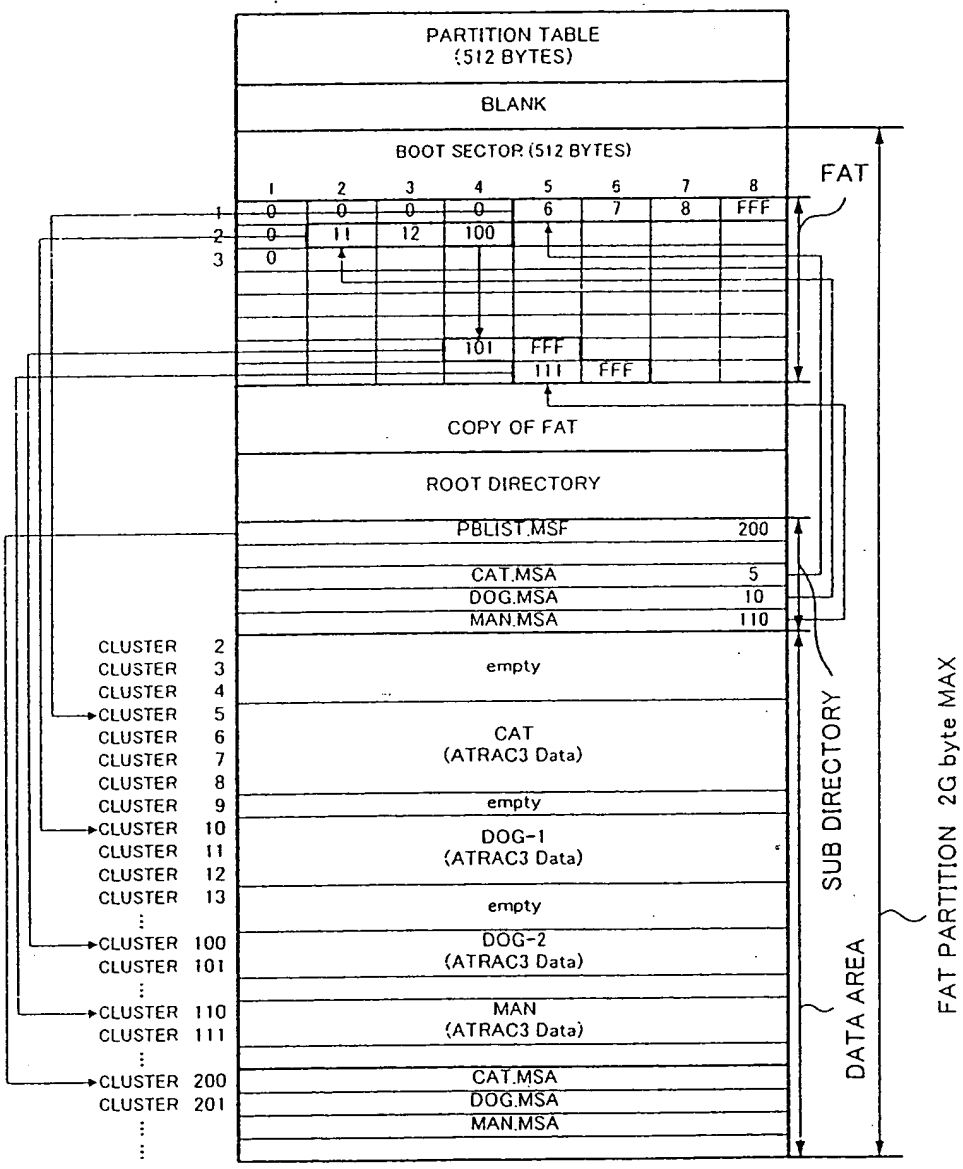

PARTITION TABLE
(512 BYTES)
BLANK
BOOT SECTOR (512 BYTES)
FAT
COPY OF FAT
ROOT DIRECTORY
PBLIST.MSF
200
CAT.MSA
5
DOG.MSA
10
MAN.MSA
110
empty
CAT
(ATRAC3 Data)
empty
DOG-1
(ATRAC3 Data)
empty
DOG-2
(ATRAC3 Data)
MAN
(ATRAC3 Data)
CAT.MSA
DOG.MSA
MAN.MSA
SUB DIRECTORY
DATA AREA
FAT PARTITION 2G byte MAX
CLUSTER 2
CLUSTER 3
CLUSTER 4
CLUSTER 5
CLUSTER 6
CLUSTER 7
CLUSTER 8
CLUSTER 9
CLUSTER 10
CLUSTER 11
CLUSTER 12
CLUSTER 13
CLUSTER 100
CLUSTER 101
CLUSTER 110
CLUSTER 111
CLUSTER 200
CLUSTER 201

Fig. 7

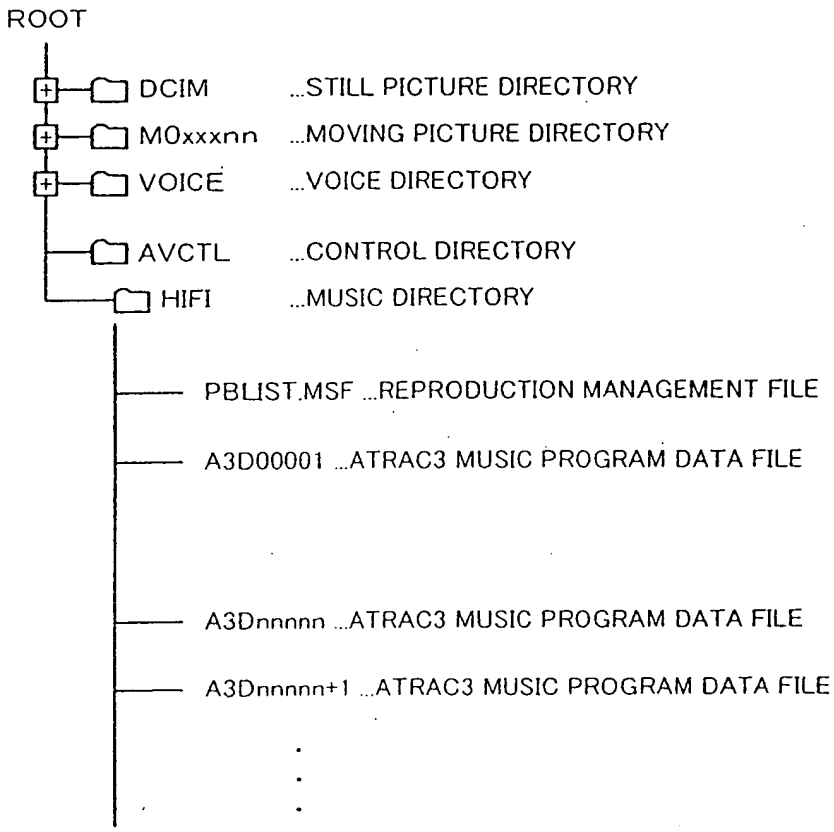

ROOT
DCIM ...STILL PICTURE DIRECTORY
MOxxxnn ...MOVING PICTURE DIRECTORY
VOICE ...VOICE DIRECTORY
AVCTL ...CONTROL DIRECTORY
HIFI ...MUSIC DIRECTORY
PBLIST.MSF ...REPRODUCTION MANAGEMENT FILE
A3D00001 ...ATRAC3 MUSIC PROGRAM DATA FILE
A3Dnnnnn ...ATRAC3 MUSIC PROGRAM DATA FILE
A3Dnnnnn+1 ...ATRAC3 MUSIC PROGRAM DATA FILE

Fig. 8

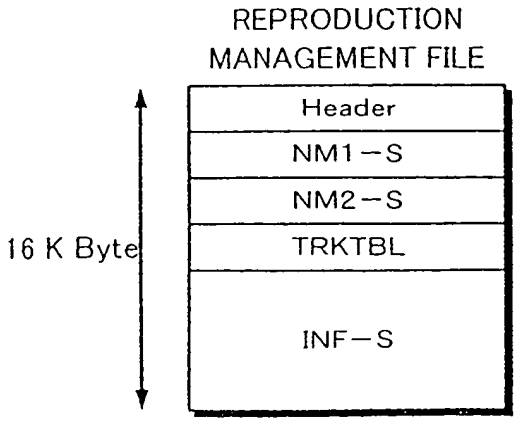

REPRODUCTION
MANAGEMENT FILE
16 K Byte
Header
NM1−S
NM2−S
TRKTBL
INF−S

Fig. 9

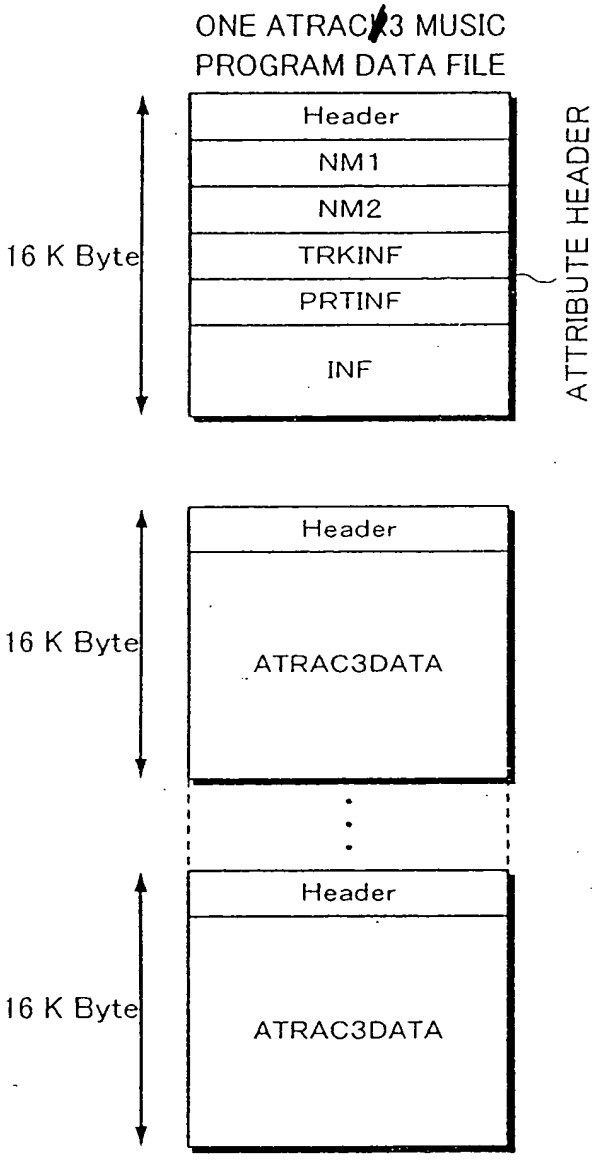

ONE ATRAC3 MUSIC
PROGRAM DATA FILE
Header
NM1
NM2
TRKINF
PRTINF
INF
ATTRIBUTE HEADER
16 K Byte
Header
ATRAC3DATA
16 K Byte
Header
ATRAC3DATA
16 K Byte

Fig. 10A

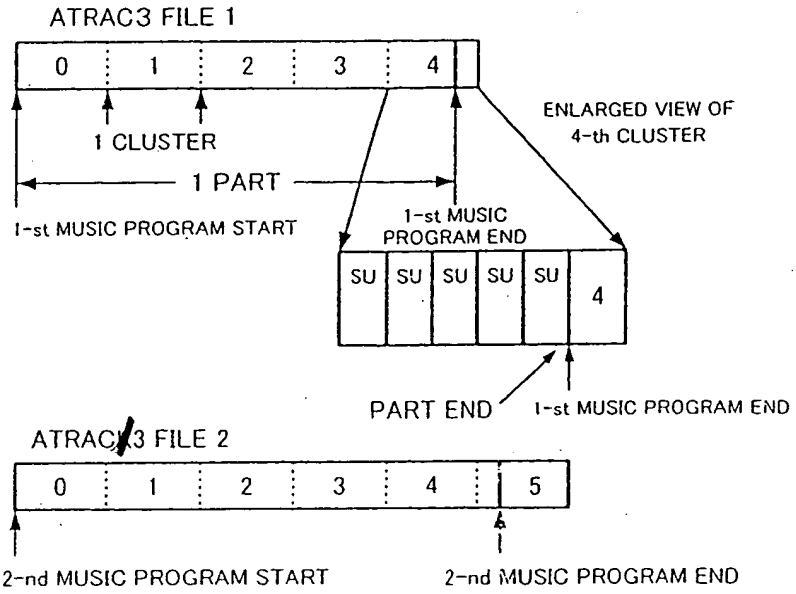


Fig. 10B

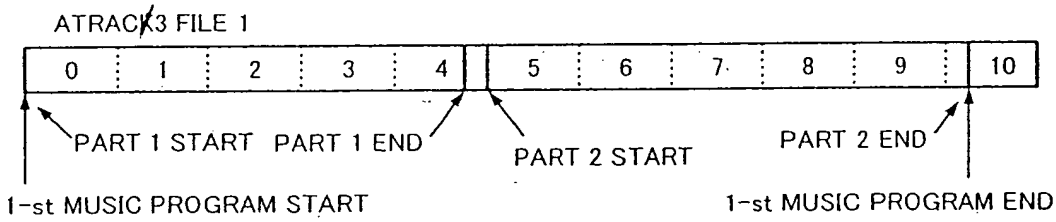


Fig. 10C

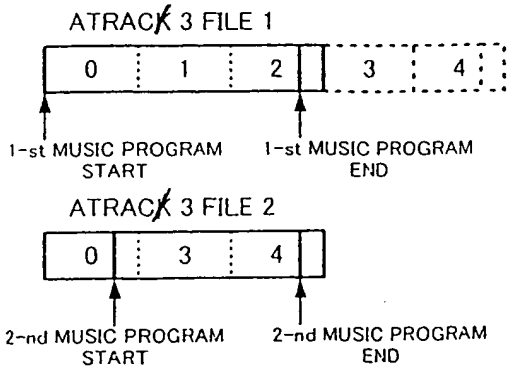


Fig. 11

REPRODUCTION MANAGEMENT FILE (PBLIST)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0X0000	BLKID−TL0				Reserved		MCode		REVISION				Reserved			
0X0010	SN1C+L		SN2C+L		SINFSIZE		T−TRK		VerNo		Reserved					
0X0020	NM1−S(256)															
0X0120	NM2−S(512)															
0X0320	Reserved								CONTENTSKEY							
0X0330	Reserved								MAC							
	Reserved												S−YMDhms			
0X0350	TRK−001		TRK−002		TRK−003		TRK−004		TRK−005		TRK−006		TRK−007		TRK−008	
	TRK−009		TRK−010		TRK−011		TRK−012		TRK−013		TRK−014		TRK−015		TRK−016	
TRKTBL																
0X0660	TRK−393		TRK−394		TRK−395		TRK−396		TRK−397		TRK−398		TRK−399		TRK−400	
0X0670	INF−S(14720)															
0X3FF0	BLKID−TL0				Reserved		MCode		REVISION				Reserved			

Fig. 12A

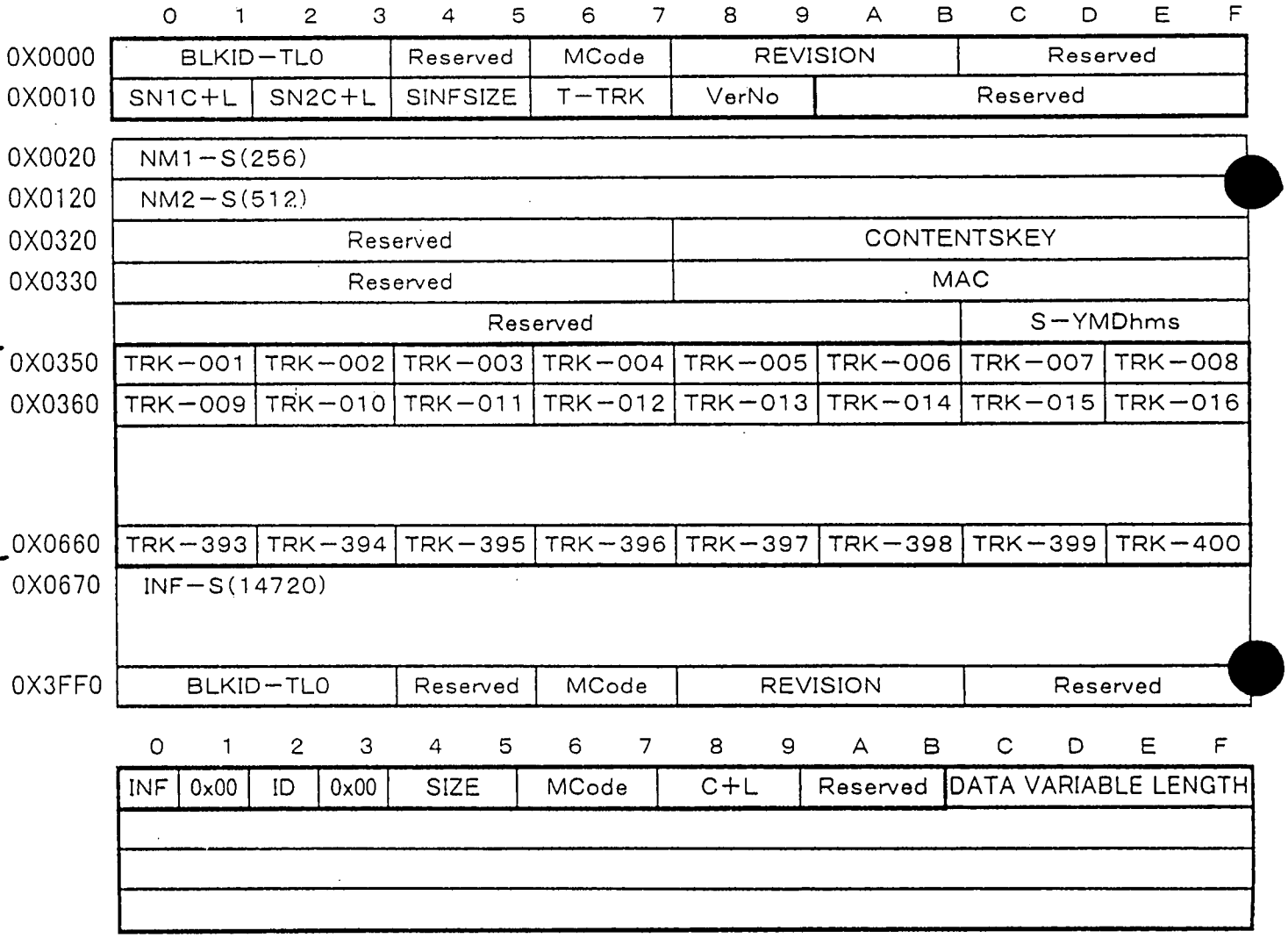


Fig. 12B

Fig. 12C

Fig. 13

ID	MUSIC INFORMATION (CHARACTERS)		ID	URL INFORMATION (WEB)	
0	RESERVED		32	RESERVED	
1	ALBUM	VARIABLE	33	ALBUM	VARIABLE
2	SUBTITLE	VARIABLE	34	SUB TITLE	VARIABLE
3	ARTIST	VARIABLE	35	ARTIST	VARIABLE
4	CONDUCTOR	VARIABLE	36	CONDUCTOR	VARIABLE
5	ORCHESTRA	VARIABLE	37	ORCHESTRA	VARIABLE
6	PRODUCER	VARIABLE	38	PRODUCER	VARIABLE
7	PUBLISHER	VARIABLE	39	PUBLISHER	VARIABLE
8	COMPOSER	VARIABLE	40	COMPOSER	VARIABLE
9	SONG WRITER	VARIABLE	41	SONG WRITER	VARIABLE
10	ARRANGER	VARIABLE	42	ARRANGER	VARIABLE
11	SPONSOR	VARIABLE	43	SPONSOR	VARIABLE
12	CM	VARIABLE	44	CM	VARIABLE
13	GUIDE	VARIABLE	45	GUIDE	VARIABLE
14	ORIGINAL MUSIC PROGRAM TITLE	VARIABLE	46	ORIGINAL MUSIC PROGRAM NAME	VARIABLE
15	ORIGINAL ALBUM TITLE	VARIABLE	47	ORIGINAL MUSIC PROGRAM ALBUM NAME	VARIABLE
16	ORIGINAL MUSIC PROGRAM COMPOSER	VARIABLE	48	ORIGINAL MUSIC PROGRAM COMPOSER	VARIABLE
17	ORIGINAL MUSIC PROGRAM SONG WRITER	VARIABLE	49	ORIGINAL MUSIC PROGRAM SONG WRITER	VARIABLE
18	ORIGINAL MUSIC PROGRAM ARRANGER	VARIABLE	50	ORIGINAL MUSIC PROGRAM ARRANGER	VARIABLE
19	ORIGINAL MUSIC PROGRAM PERFORMER	VARIABLE	51	ORIGINAL MUSIC PROGRAM PERFORMER	VARIABLE
20	MESSAGE	VARIABLE	52		
21	COMMENT	VARIABLE	53		
22	WARNING	VARIABLE	54		
23	GENRE	VARIABLE	55		
24			56		
25			57		
26			58		
27			59		
28			60		
29			61		
30			62		
31			63		

Fig. 14

ID	PATH/OTHERS		ID	CONTROL/NUMERIC DATA INFORMATION	
64	RESERVED		96	RESERVED	
65	PATH TO VIDEO DATA	VARIABLE	97	ISRC	8
66	PATH TO SONG DATA	VARIABLE	98	TOC_ID	8
67	PATH TO MIDI DATA	VARIABLE	99	UPC/JAN	7
68	PATH TO GUIDE DATA	VARIABLE	100	RECORDED DATE (YMDhms)	4
69	PATH TO COMMENT DATA	VARIABLE	101	RELEASED DATE	4
70	PATH TO CM DATA	VARIABLE	102	ORIGINAL MUSIC PROGRAM RELEASED DATE (YMDhms)	4
71	PATH TO FAX DATA	VARIABLE	103	RECORDED DATE (YMDhms)	4
72	PATH TO COMMUNICATION DATA 1	VARIABLE	104	SUB TRACK	4
73	PATH TO COMMUNICATION DATA 2	VARIABLE	105	AVERAGE VOLUME LEVEL	1
74	PATH TO CONTROL DATA	VARIABLE	106	RESUME	4
75			107	REPRODUCTION LOG (YMDhms)	4
76			108	NUMBER OF REPRODUCTION TIMES (FOR LEARNING)	1
77			109	PASSWORD 1	16
78			110	APPLevel	16
79			111	GENRE CODE	1
80			112	MIDI DATA	
81			113	THUMB NAIL PHOTOGRAPH DATA	
82			114	TEXT MULTIPLEXED BROADCAST DATA	
83			115	NUMBER OF TOTAL MUSIC PROGRAMS	
84			116	SET NUMBER	
85			117	NUMBER OF TOTAL SETS	
86			118	REC POSITION INFORMATION - GPS	VARIABLE
87			119	PB POSITION INFORMATION - GPS	VARIABLE
88			120	REC POSITION INFORMATION - PHS	VARIABLE
89			121	PB POSITION INFORMATION - PHS	VARIABLE
90			122	CONNECTION DESTINATION TELEPHONE NUMBER 1	VARIABLE
91			123	CONNECTION DESTINATION TELEPHONE NUMBER 2	VARIABLE
92			124	INPUT VALUE	VARIABLE
93			125	OUTPUT VALUE	VARIABLE
94			126	PB CONTROL DATA	VARIABLE
95			127	REC CONTROL DATA	VARIABLE

0+2+5+6+5+6+5+6

Fig. 15

ID	SYNCHRONOUS REPRODUCTION INFORMATION	
128	RESERVED	
129	SYNCHRONOUS REPRODUCTION INFORMATION 1	VARIABLE
130	SYNCHRONOUS REPRODUCTION INFORMATION 2	VARIABLE
131	SYNCHRONOUS REPRODUCTION INFORMATION 3	VARIABLE
132	SYNCHRONOUS REPRODUCTION INFORMATION 4	VARIABLE
133	SYNCHRONOUS REPRODUCTION INFORMATION 5	VARIABLE
134	SYNCHRONOUS REPRODUCTION INFORMATION 6	VARIABLE
135		
136		
137		
138	EMD INFORMATION 1	VARIABLE
139	EMD INFORMATION 2	VARIABLE
140		
141		
142		
143		
144		
145		
146		
147		
148		
149		
150		
151		
152		
153		
154		
155		
156		
157		
158		
159		

0 6 5 5 6 5 6 0 5 6 5 6 0 5 6 5 6 0

Fig. 16A

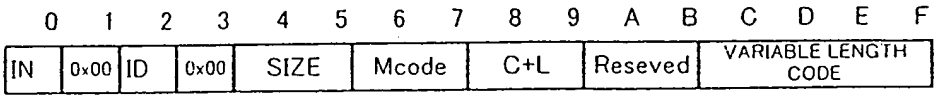


Fig. 16B

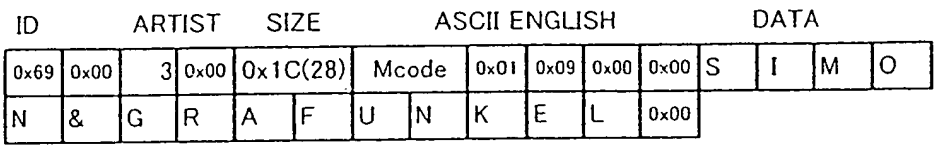


Fig. 16C

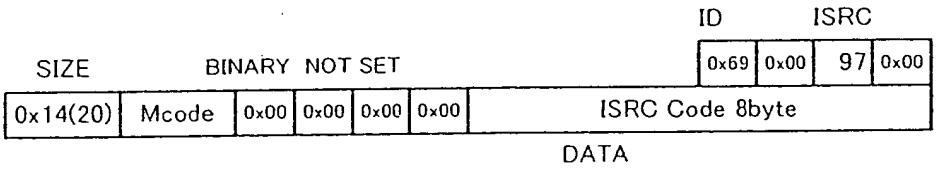


Fig. 16D

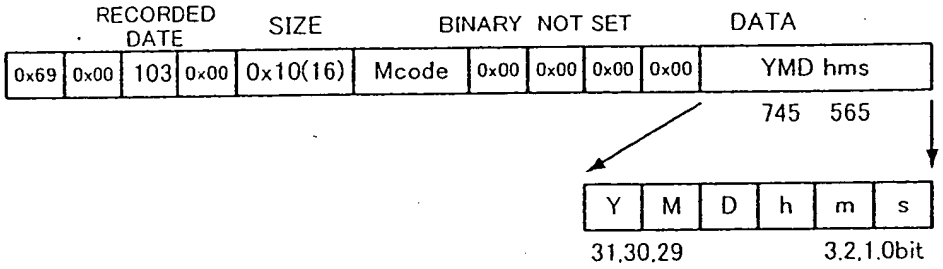
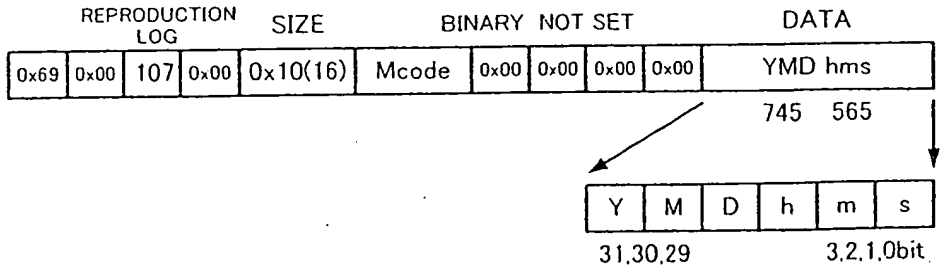


Fig. 16E



0-4-5-6-5-6-5-6

Fig. 17

A3Dnnnnn.MSA(ATRAC3 DATA FILE)

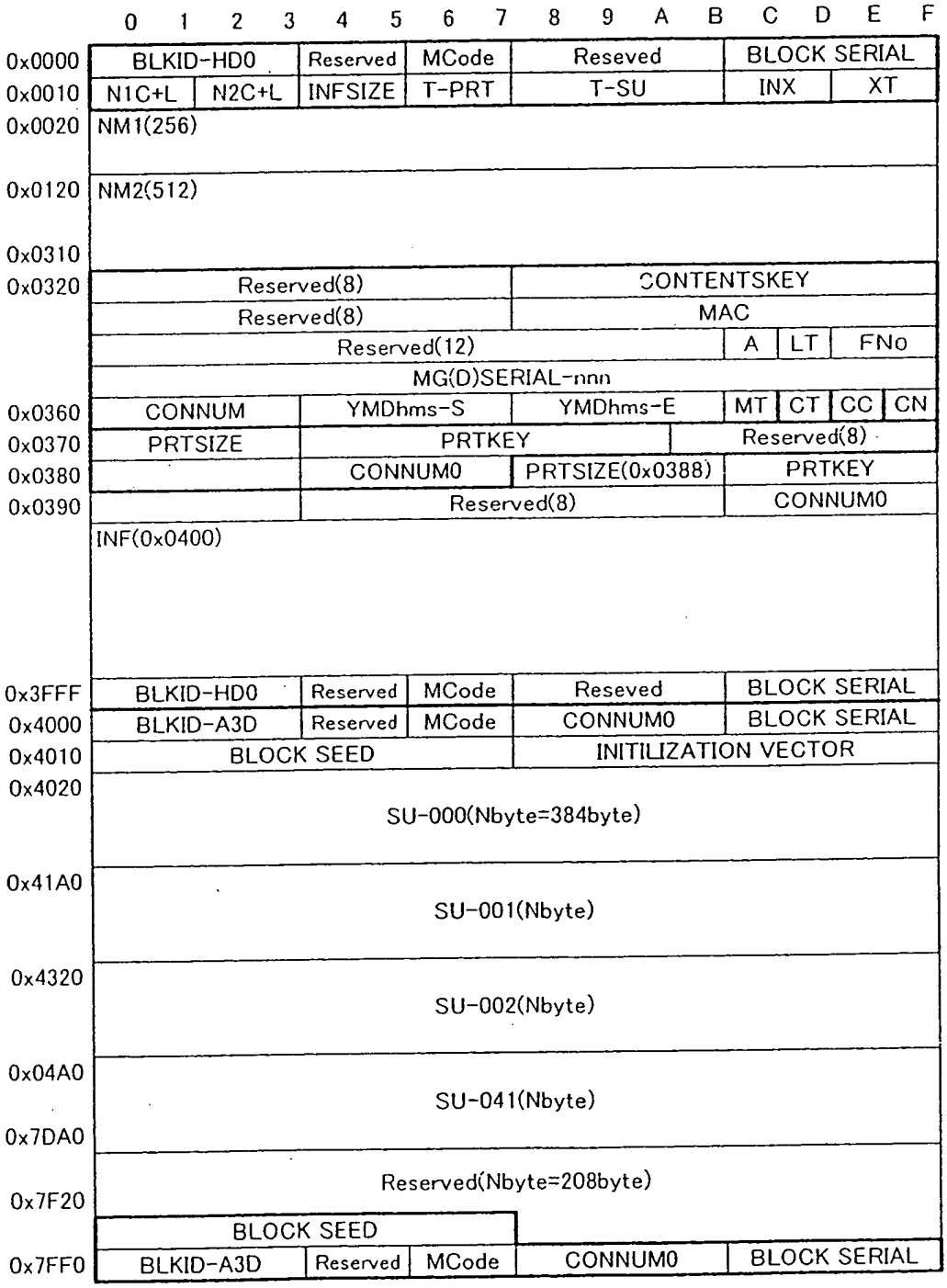


Fig. 18

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0x0000	BLKID-HD0				Reserved		MCode		Reseved				BLOCK SERIAL			
0x0010	N1C+L		N2C+L		INFSIZE		T-PRT		T-SU				INX		XT	
0x0020	NM1(256)															
0x0120	NM2(512)															
0x0310																

Fig. 19

0x0320	Reserved(8)				CONTENTSKEY			
	Reserved(8)				MAC			
	Reserved(12)					A	LT	FNo
	MG(D)SERIAL-nnn							
0x0360	CONNUM		YMDhms-S		YMDhms-E	MT	CT	CC	CN

Fig. 20

bit7:MODE OF ATRAC3 0:Dual 1:Joint

bit6,5,4 N OF 3 BITS:MODE VALUE

N	MODE	TIME	TRANSMISSION RATE	SU	BYTES
7	HQ	47min	176kbps	31SU	512
6		58min	146kbps	38SU	424
5	EX	64min	132kbps	42SU	384
4	SP	81min	105kbps	53SU	304
3		90min	94kbps	59SU	272
2	LP	128min	66kbps	84SU	192
1	mono	181min	47kbps	119SU	136
0	mono	258min	33kbps	169SU	96

bit3:Reserved

bit2:DATA TYPE 0:AUDIO 1:OTHER

bit1:REPRODUCTION SKIP 0:NORMAL REP 1:SKIP

bit0:EMPHASIS 0:OFF 1:ON(50/15 μ S)

Fig. 21

bit7	:COPY PERMISSION 0:COPY PROHIBITION 1:COPY PERMISSION
bit6	:GENERATION 0:ORIGINAL 1:FIRST OR LATER COPY GENERATION
HCMS bit5-4	:COPY CONTROL FOR HIGH SPEED DIGITAL COPY
	00:COPY PROHIBITION 01:COPY FIRST GENERATION 10:COPY PERMISSION
	COPY OF FIRST COPY GENERATION IS PROHIBITED.
bit3-2	MagicGate AUTHENTICATION LEVEL
	00:Level10(Non-MG) 01:Level1
	10:Level2 11:Reserved
	DIVIDE AND COMBINE ARE PROHIBITED IN OTHER THAN LEVEL 10.
bit1,0	Reserved

Fig. 22

0x0370	PRTSIZE	PRTKEY		Reserved(8)
0x0380		CONNUM0	PRTSIZE(0x0388)	PRTKEY
0x0390		Reserved(8)		CONNUM0

Fig. 23

0x4000	BLKID-A3D	Reserved	MCode	CONNUM0	BLOCK SERIAL
0x4010	BLOCK SEED			INITILIZATION VECTOR	
0x4020	SU-000(Nbyte=384byte)				

Fig. 24A

Fig. 24

Fig. 24A
Fig. 24B
Fig. 24C

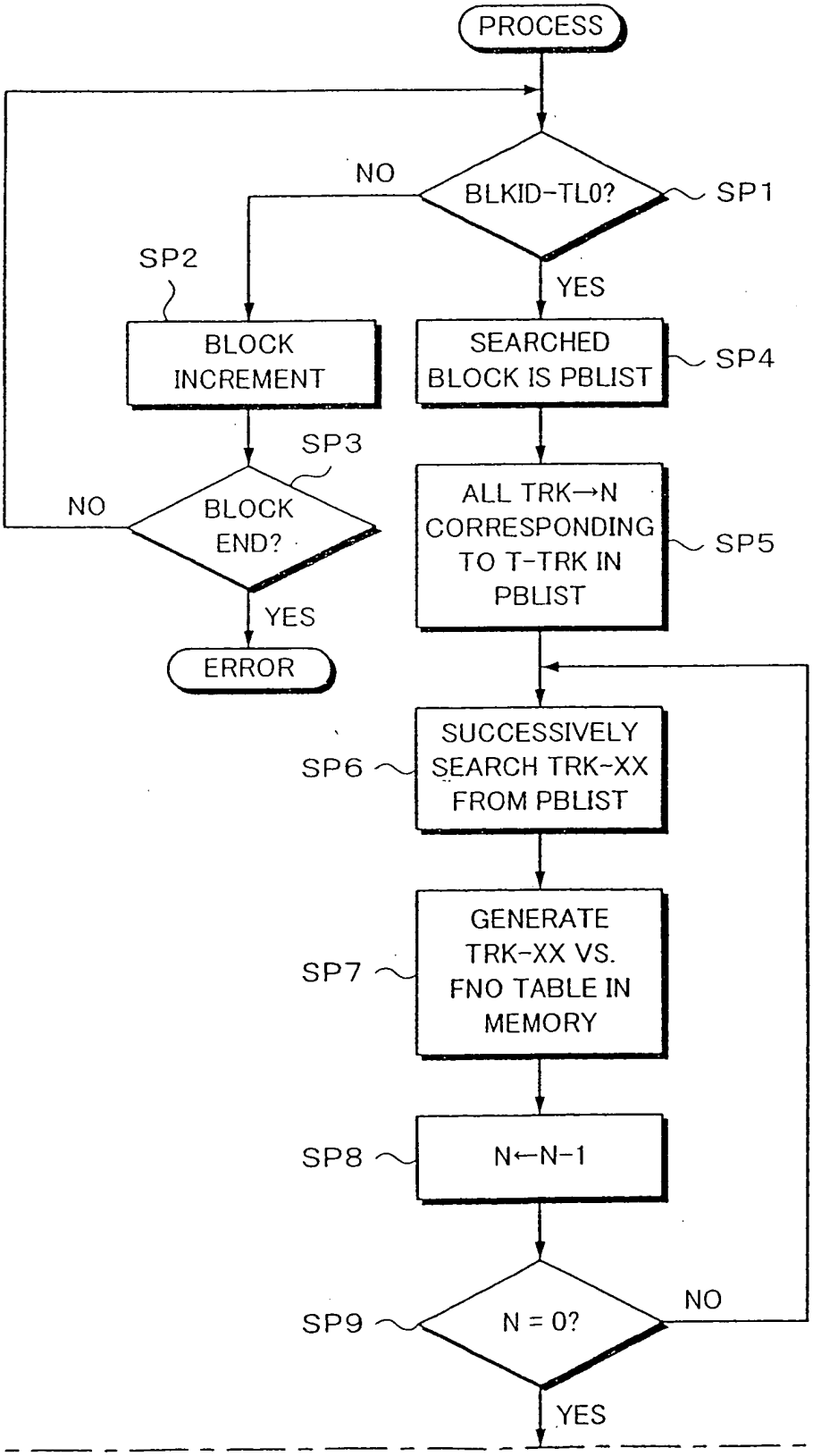


Fig. 24B

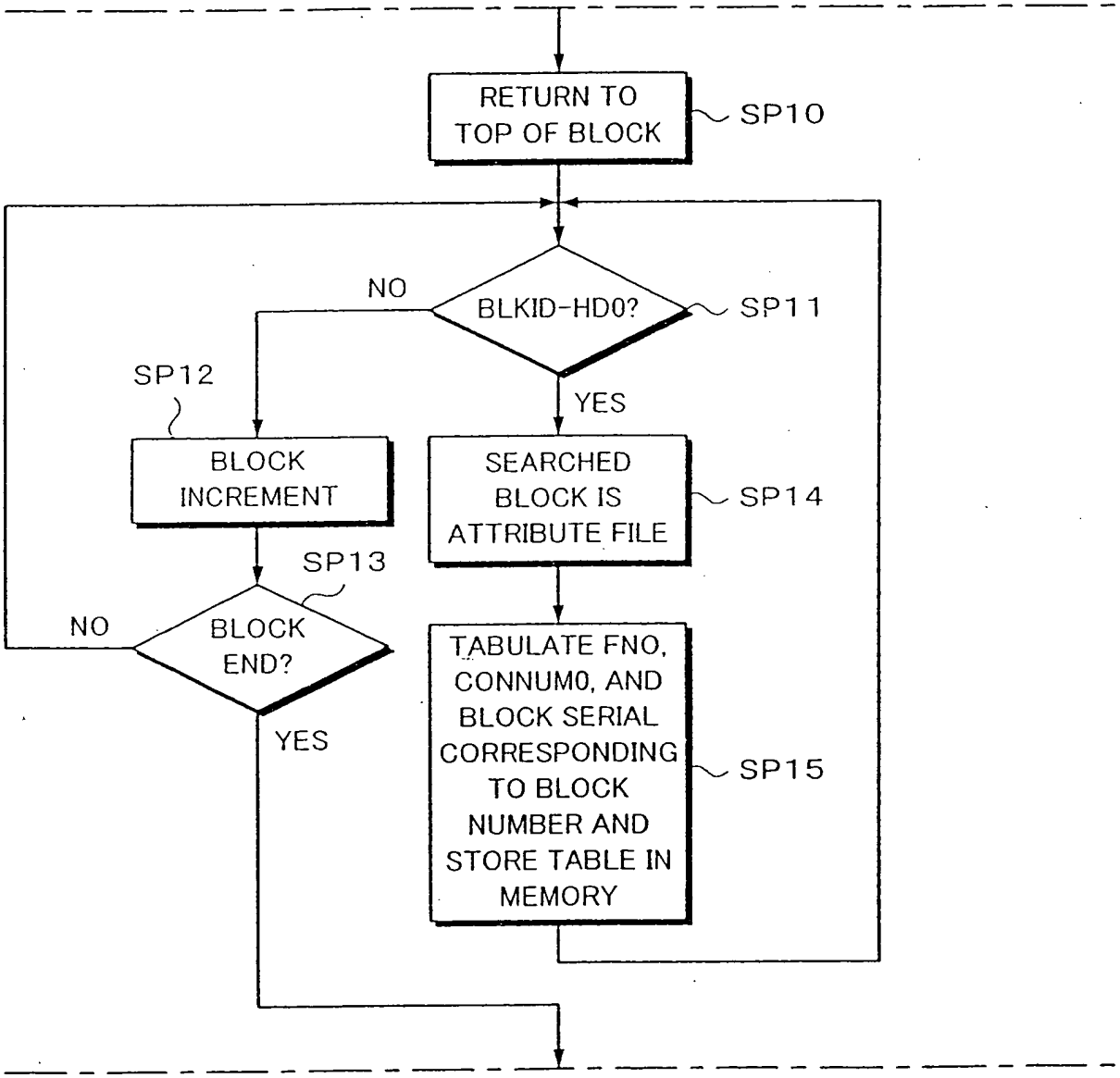

RETURN TO TOP OF BLOCK
SP10
BLKID-HD0?
SP11
NO
YES
SP12
BLOCK INCREMENT
SEARCHED BLOCK IS ATTRIBUTE FILE
SP14
SP13
BLOCK END?
NO
YES
TABULATE FNO, CONNUM0, AND BLOCK SERIAL CORRESPONDING TO BLOCK NUMBER AND STORE TABLE IN MEMORY
SP15

Fig. 24C

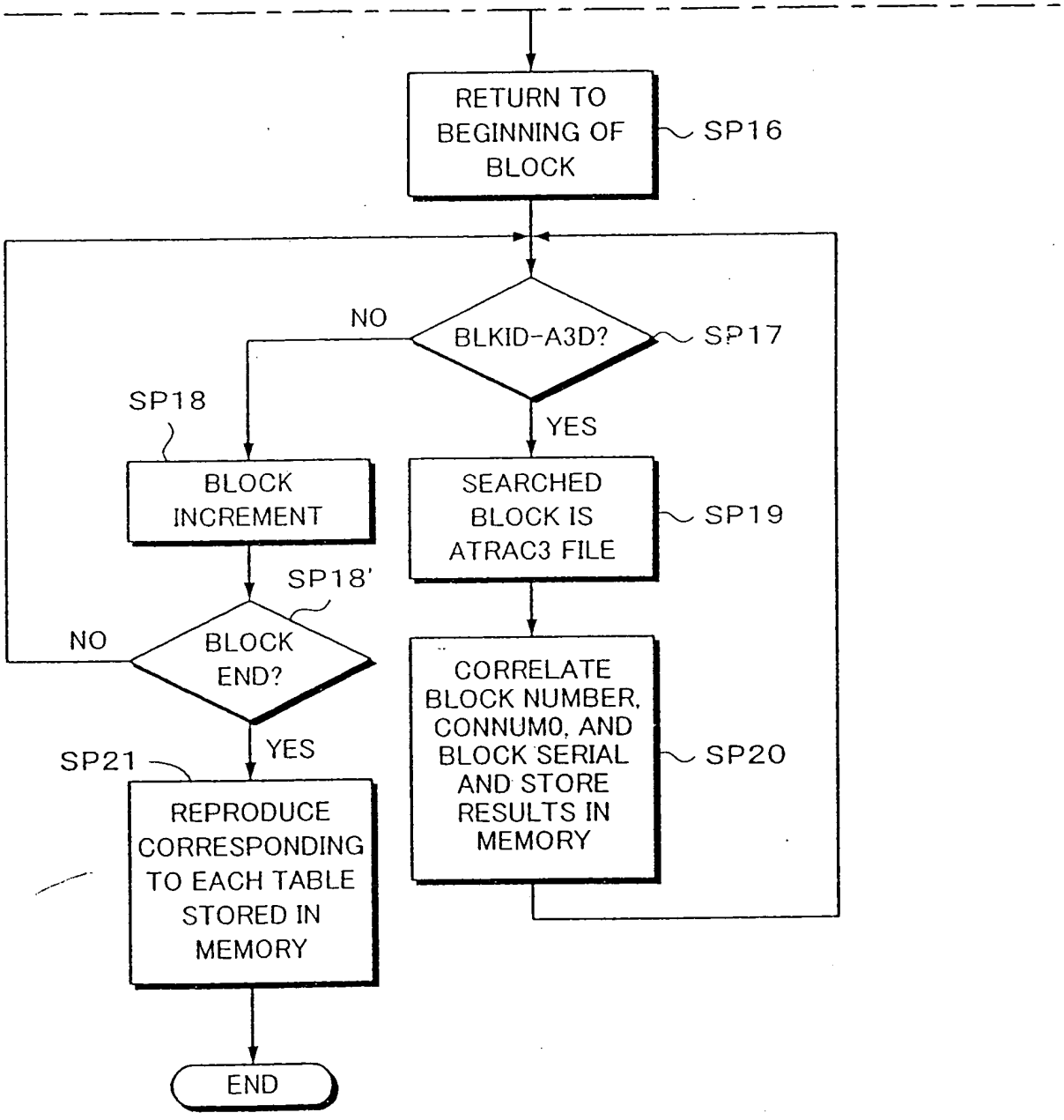

RETURN TO BEGINNING OF BLOCK
SP16
BLKID-A3D?
SP17
NO
YES
SP18
BLOCK INCREMENT
SEARCHED BLOCK IS ATRAC3 FILE
SP19
SP18'
BLOCK END?
NO
YES
SP21
CORRELATE BLOCK NUMBER, CONNUM0, AND BLOCK SERIAL AND STORE RESULTS IN MEMORY
SP20
REPRODUCE CORRESPONDING TO EACH TABLE STORED IN MEMORY
END

Fig. 25

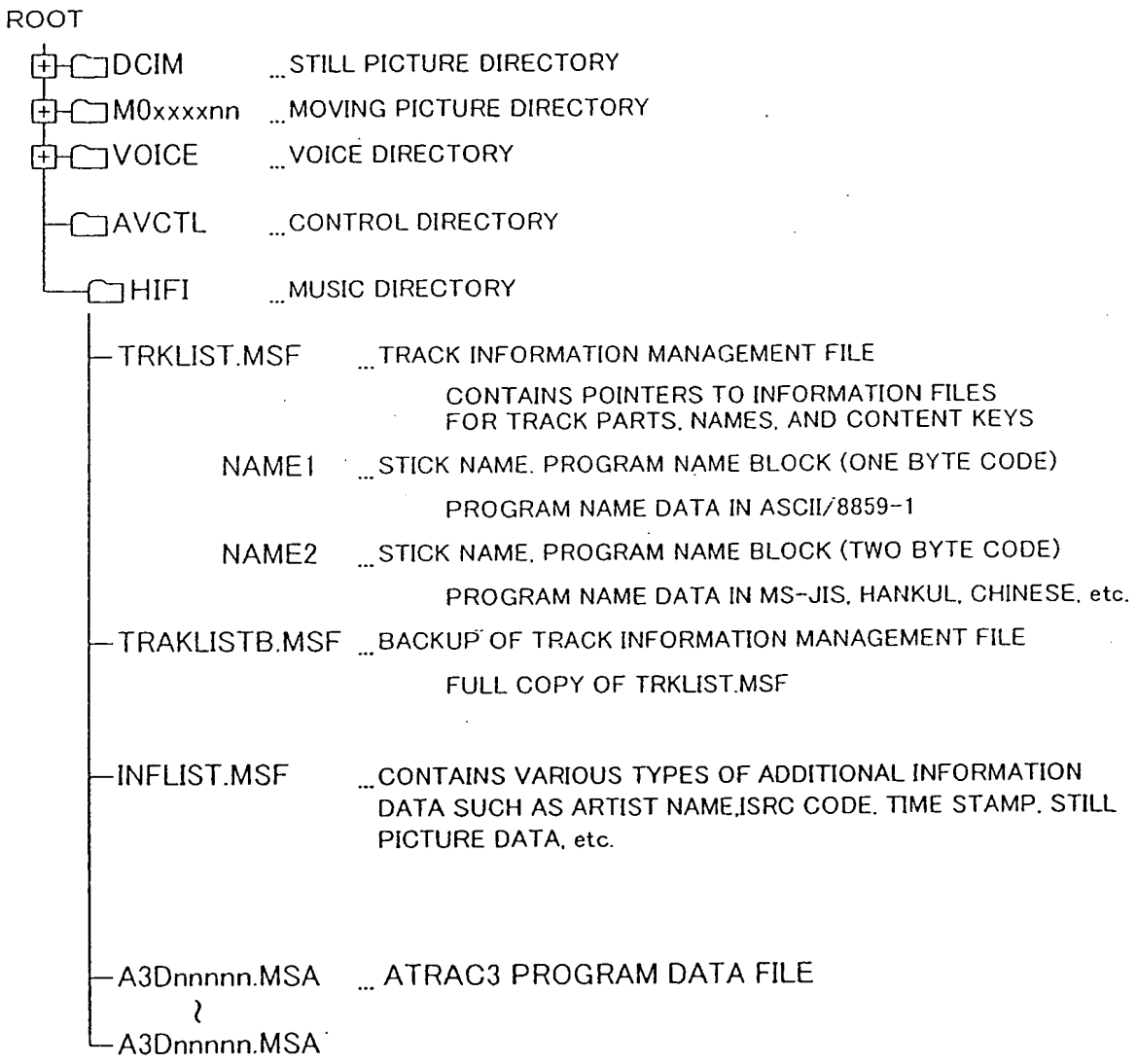

ROOT
DCIM ...STILL PICTURE DIRECTORY
M0xxxxnn ...MOVING PICTURE DIRECTORY
VOICE ...VOICE DIRECTORY
AVCTL ...CONTROL DIRECTORY
HIFI ...MUSIC DIRECTORY
TRKLIST.MSF ...TRACK INFORMATION MANAGEMENT FILE
CONTAINS POINTERS TO INFORMATION FILES FOR TRACK PARTS, NAMES, AND CONTENT KEYS
NAME1 ...STICK NAME, PROGRAM NAME BLOCK (ONE BYTE CODE)
PROGRAM NAME DATA IN ASCII/8859-1
NAME2 ...STICK NAME, PROGRAM NAME BLOCK (TWO BYTE CODE)
PROGRAM NAME DATA IN MS-JIS, HANKUL, CHINESE, etc.
TRAKLISTB.MSF ...BACKUP OF TRACK INFORMATION MANAGEMENT FILE
FULL COPY OF TRKLIST.MSF
INFLIST.MSF ...CONTAINS VARIOUS TYPES OF ADDITIONAL INFORMATION DATA SUCH AS ARTIST NAME,ISRC CODE, TIME STAMP, STILL PICTURE DATA, etc.
A3Dnnnnn.MSA ... ATRAC3 PROGRAM DATA FILE
A3Dnnnnn.MSA

Fig. 26

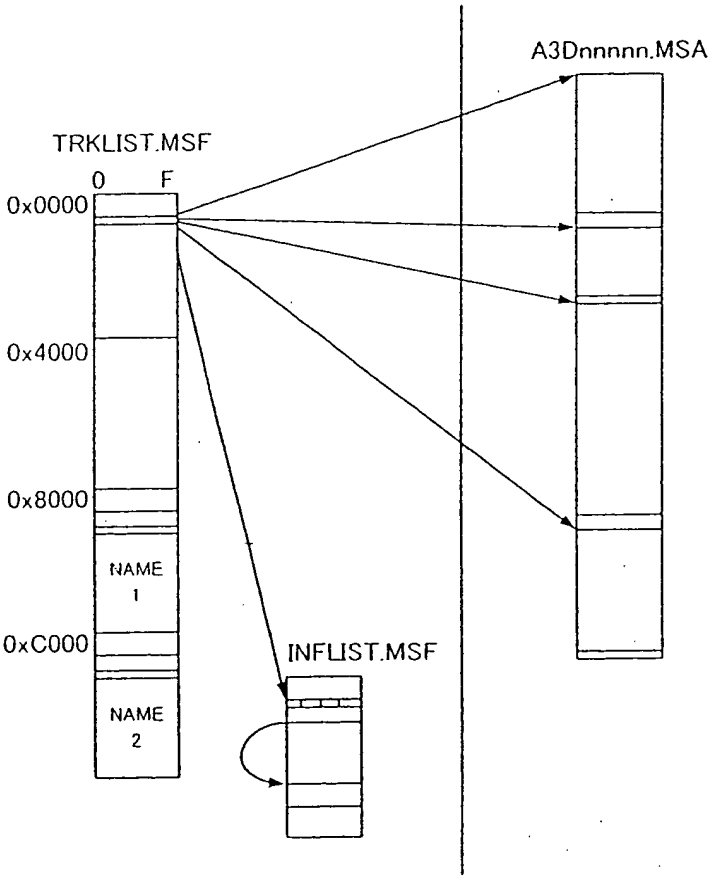

A3Dnnnnn.MSA
TRKLIST.MSF
0
F
0x0000
0x4000
0x8000
NAME
1
0xC000
NAME
2
INFLIST.MSF

Fig. 27

TRACK INFORMATION MANAGEMENT FILE
(TRKLIST.MSF)

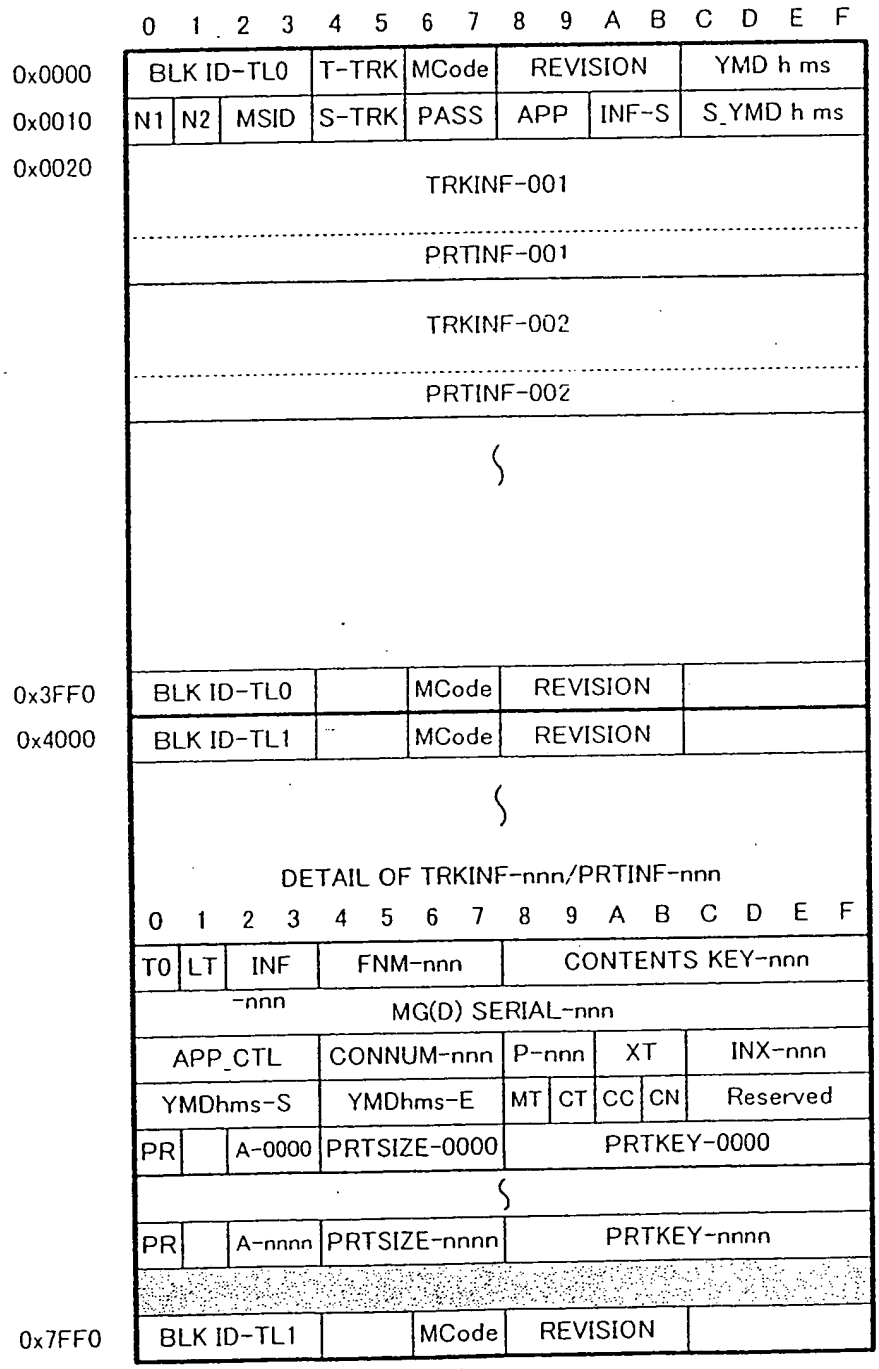


Fig. 28

STICK NAME, PROGRAM NAME BLOCK - 1-BYTE AREA

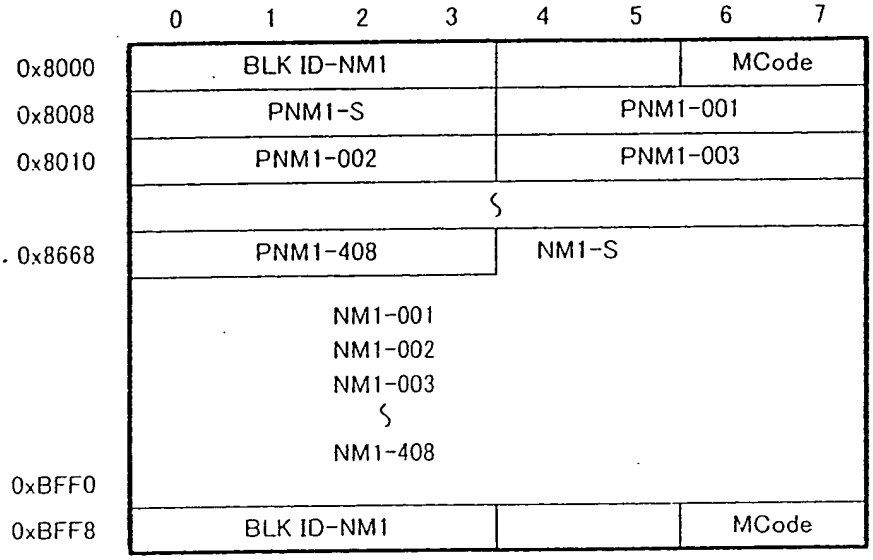


Fig. 29

STICK NAME, PROGRAM NAME BLOCK - 2-BYTE AREA

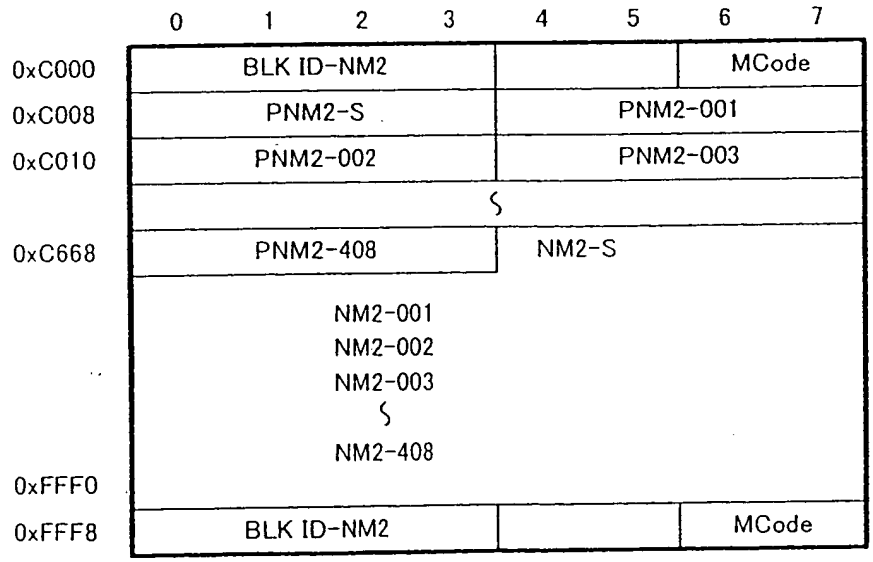


Fig. 30

ATRAC3 DATA FILE (A3Dnnnnn.MSA) ··· 1 SoundUnit:N BYTES

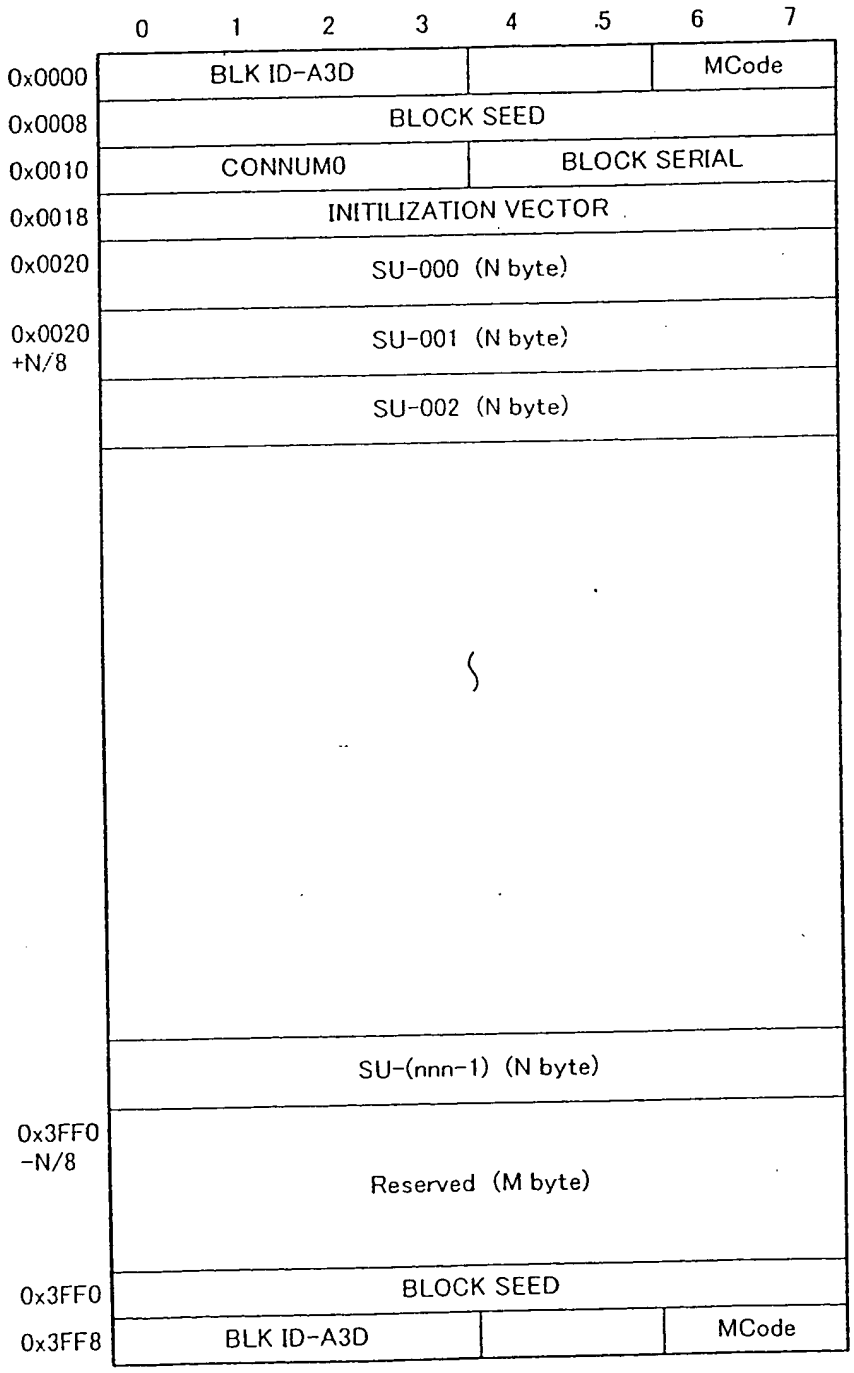


Fig. 31

ADDITIONAL INFORMATION MANAGEMENT FILE (INFLIST.MSF)

	0 1 2 3	4 5 6	7 8 9 A	B C D E F
0x0000	BLK ID-INF	T-DAT	MCode	YMDhms	INF-409
0x0010	INF-001	INF-002	INF-003	INF-004
0x0020	INF-005	INF-006	INF-007	INF-008
	⌇	⌇	⌇	⌇
0x0660	INF-405	INF-406	INF-407	INF-408
0x07F0	Reserved			
0x0800	DataSlot-0000			
0x0810	DataSlot-0001			
	⌇			
0x3FF0	DataSlot-03 7F(895dec)			
0x4000	DataSlot-03 8 0			
	⌇			
	DataSlot-FFFF(MAXIMUM VALUE)			

Fig. 32

ADDITIONAL INFORMATION DATA STRUCTURE

0 1	2 3	4 5	6 7	8 9	A B	C D	E F
IN	ID	SID	00	SIZE	MCode		
VARIABLE LENGTH DATA							

09/420,600 - 090599

Fig. 33

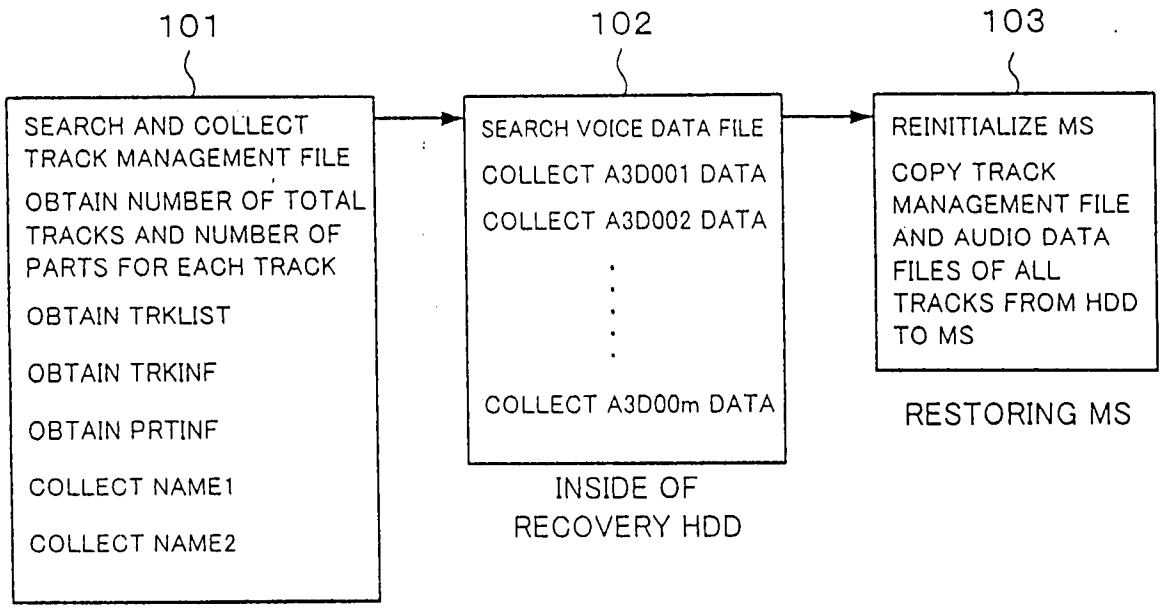
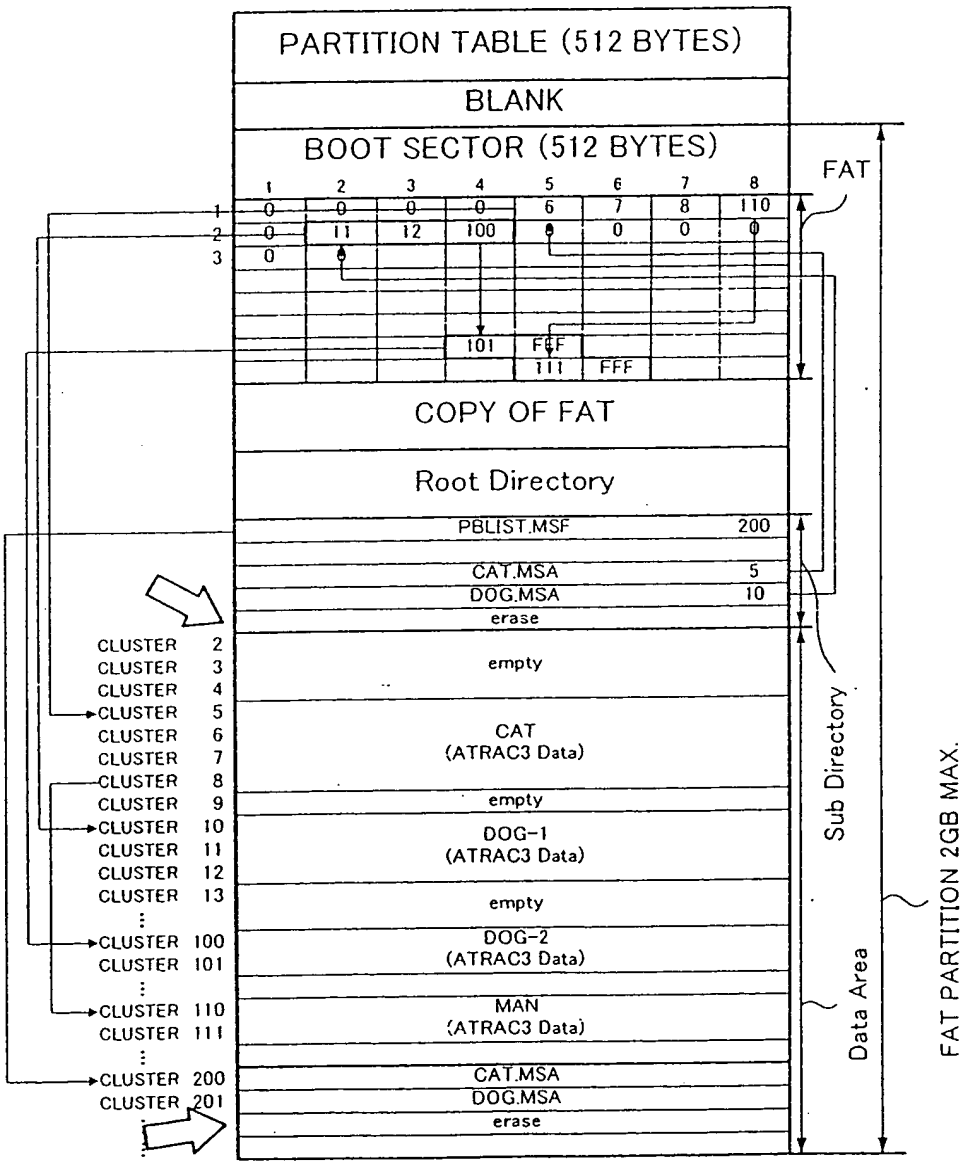


Fig. 34


PARTITION TABLE (512 BYTES)
BLANK
BOOT SECTOR (512 BYTES)
FAT
COPY OF FAT
Root Directory
PBLIST.MSF 200
CAT.MSA 5
DOG.MSA 10
erase
empty
CAT
(ATRAC3 Data)
empty
DOG-1
(ATRAC3 Data)
empty
DOG-2
(ATRAC3 Data)
MAN
(ATRAC3 Data)
CAT.MSA
DOG.MSA
erase
Sub Directory
Data Area
FAT PARTITION 2GB MAX.
CLUSTER 2
CLUSTER 3
CLUSTER 4
CLUSTER 5
CLUSTER 6
CLUSTER 7
CLUSTER 8
CLUSTER 9
CLUSTER 10
CLUSTER 11
CLUSTER 12
CLUSTER 13
CLUSTER 100
CLUSTER 101
CLUSTER 110
CLUSTER 111
CLUSTER 200
CLUSTER 201

0043E0 00SE560

Fig. 35A

Fig. 35B

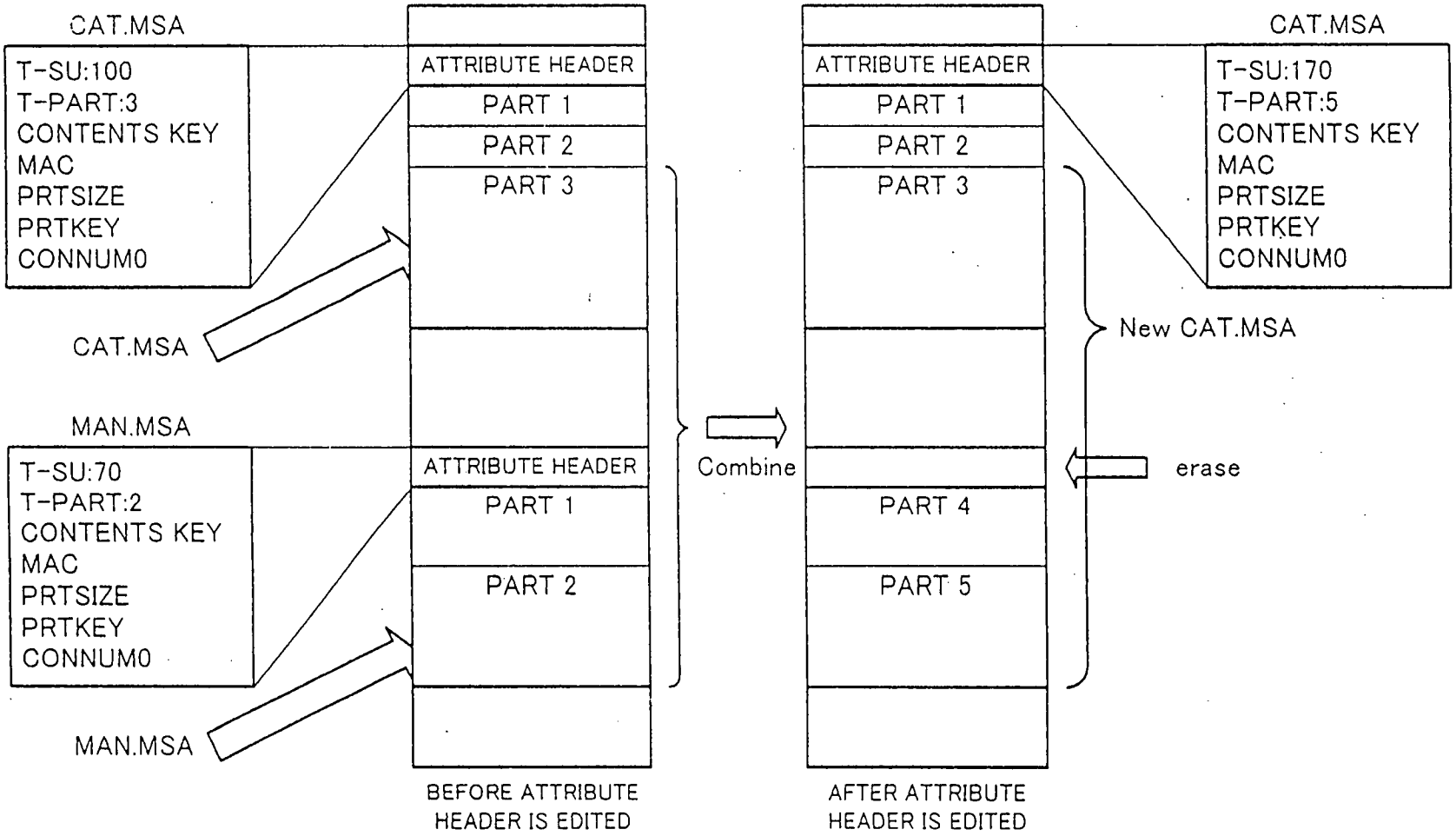


Fig. 36

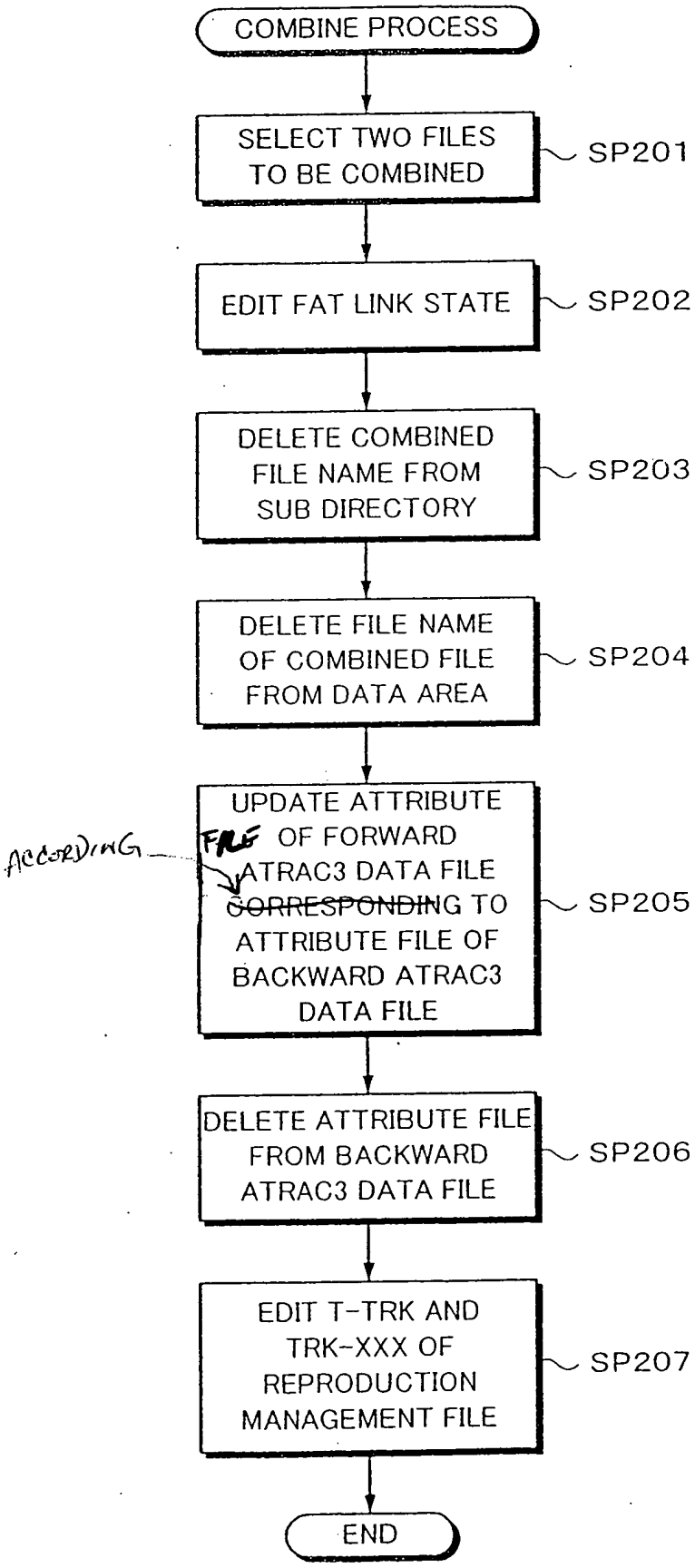
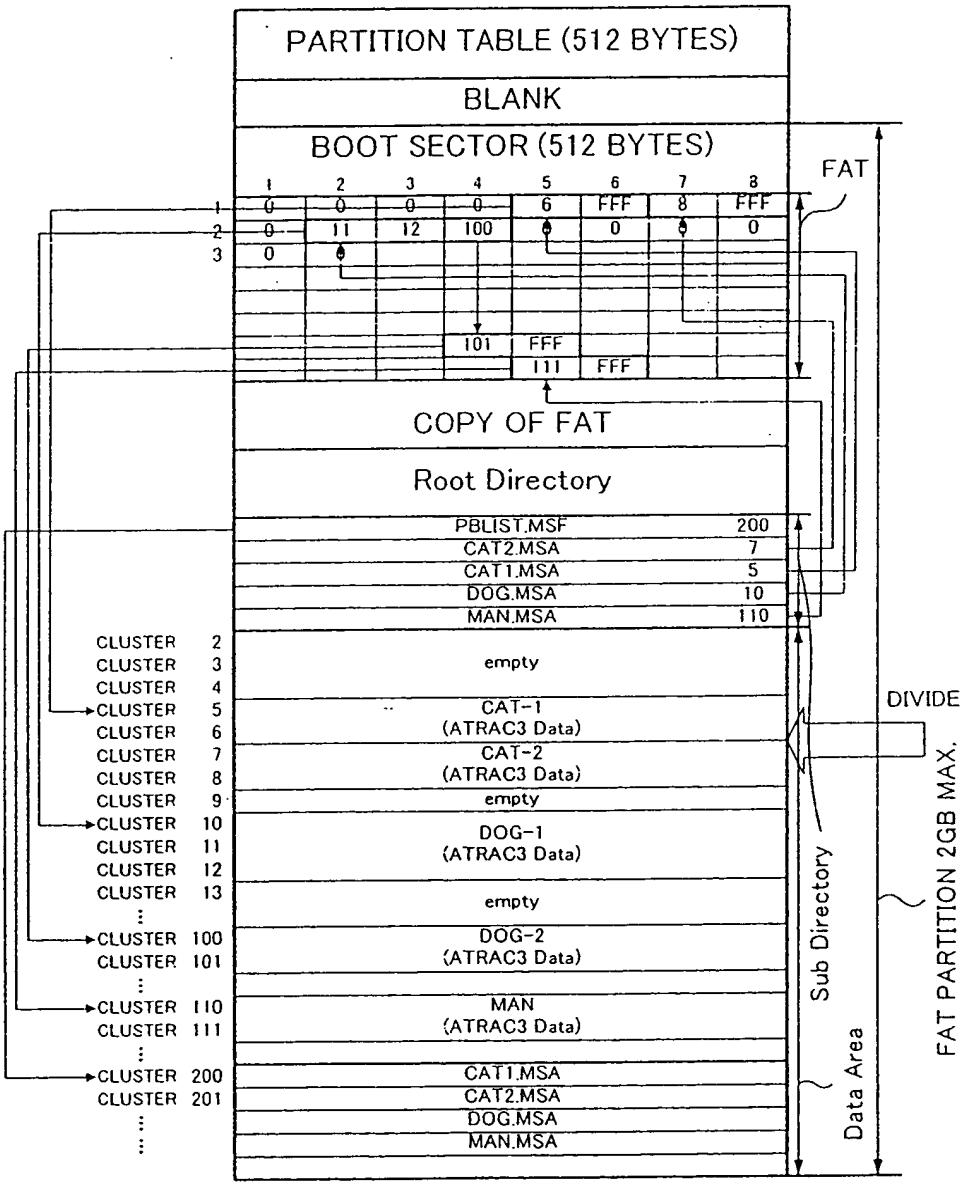

COMBINE PROCESS
SELECT TWO FILES TO BE COMBINED
SP201
EDIT FAT LINK STATE
SP202
DELETE COMBINED FILE NAME FROM SUB DIRECTORY
SP203
DELETE FILE NAME OF COMBINED FILE FROM DATA AREA
SP204
UPDATE ATTRIBUTE FILE OF FORWARD ATRAC3 DATA FILE ~~CORRESPONDING~~ TO ATTRIBUTE FILE OF BACKWARD ATRAC3 DATA FILE
SP205
DELETE ATTRIBUTE FILE FROM BACKWARD ATRAC3 DATA FILE
SP206
EDIT T-TRK AND TRK-XXX OF REPRODUCTION MANAGEMENT FILE
SP207
END

Fig. 37


PARTITION TABLE (512 BYTES)
BLANK
BOOT SECTOR (512 BYTES)
FAT
COPY OF FAT
Root Directory
PBLIST.MSF 200
CAT2.MSA 7
CAT1.MSA 5
DOG.MSA 10
MAN.MSA 110
CLUSTER 2
CLUSTER 3
CLUSTER 4
CLUSTER 5
CLUSTER 6
CLUSTER 7
CLUSTER 8
CLUSTER 9
CLUSTER 10
CLUSTER 11
CLUSTER 12
CLUSTER 13
CLUSTER 100
CLUSTER 101
CLUSTER 110
CLUSTER 111
CLUSTER 200
CLUSTER 201
empty
CAT-1 (ATRAC3 Data)
CAT-2 (ATRAC3 Data)
empty
DOG-1 (ATRAC3 Data)
empty
DOG-2 (ATRAC3 Data)
MAN (ATRAC3 Data)
CAT1.MSA
CAT2.MSA
DOG.MSA
MAN.MSA
DIVIDE
Sub Directory
Data Area
FAT PARTITION 2GB MAX.

0043501 E005E560

Fig. 38A

Fig. 38B

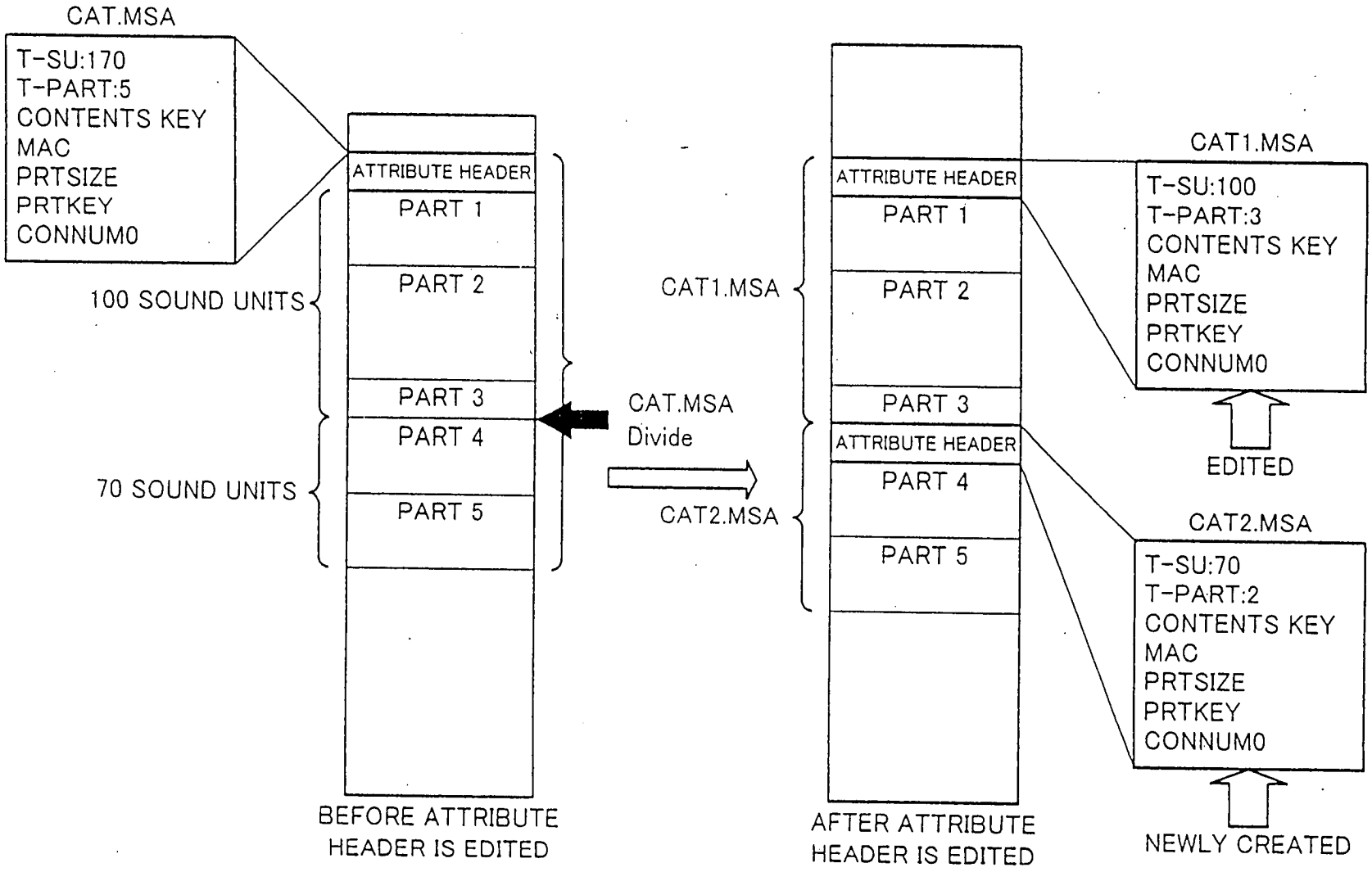


Fig. 39

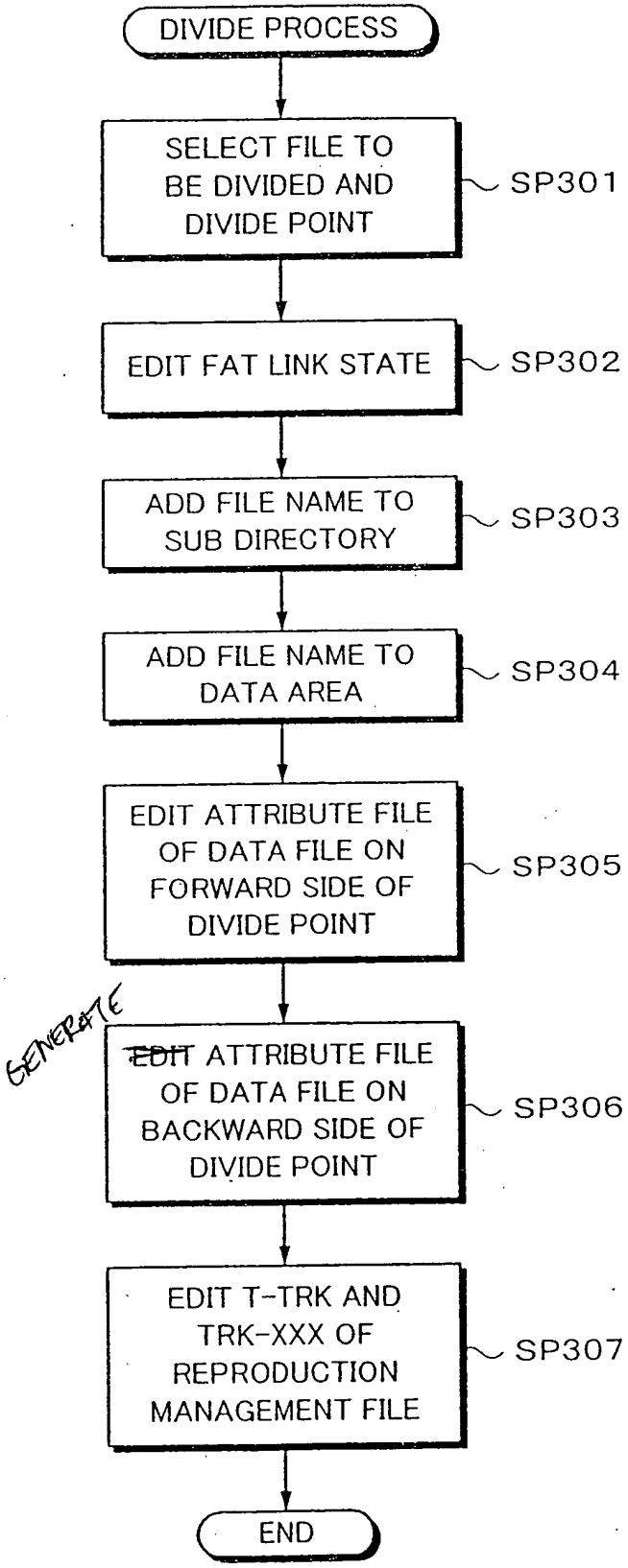

DIVIDE PROCESS
SELECT FILE TO BE DIVIDED AND DIVIDE POINT
SP301
EDIT FAT LINK STATE
SP302
ADD FILE NAME TO SUB DIRECTORY
SP303
ADD FILE NAME TO DATA AREA
SP304
EDIT ATTRIBUTE FILE OF DATA FILE ON FORWARD SIDE OF DIVIDE POINT
SP305
GENERATE
~~EDIT~~ ATTRIBUTE FILE OF DATA FILE ON BACKWARD SIDE OF DIVIDE POINT
SP306
EDIT T-TRK AND TRK-XXX OF REPRODUCTION MANAGEMENT FILE
SP307
END

Fig. 40

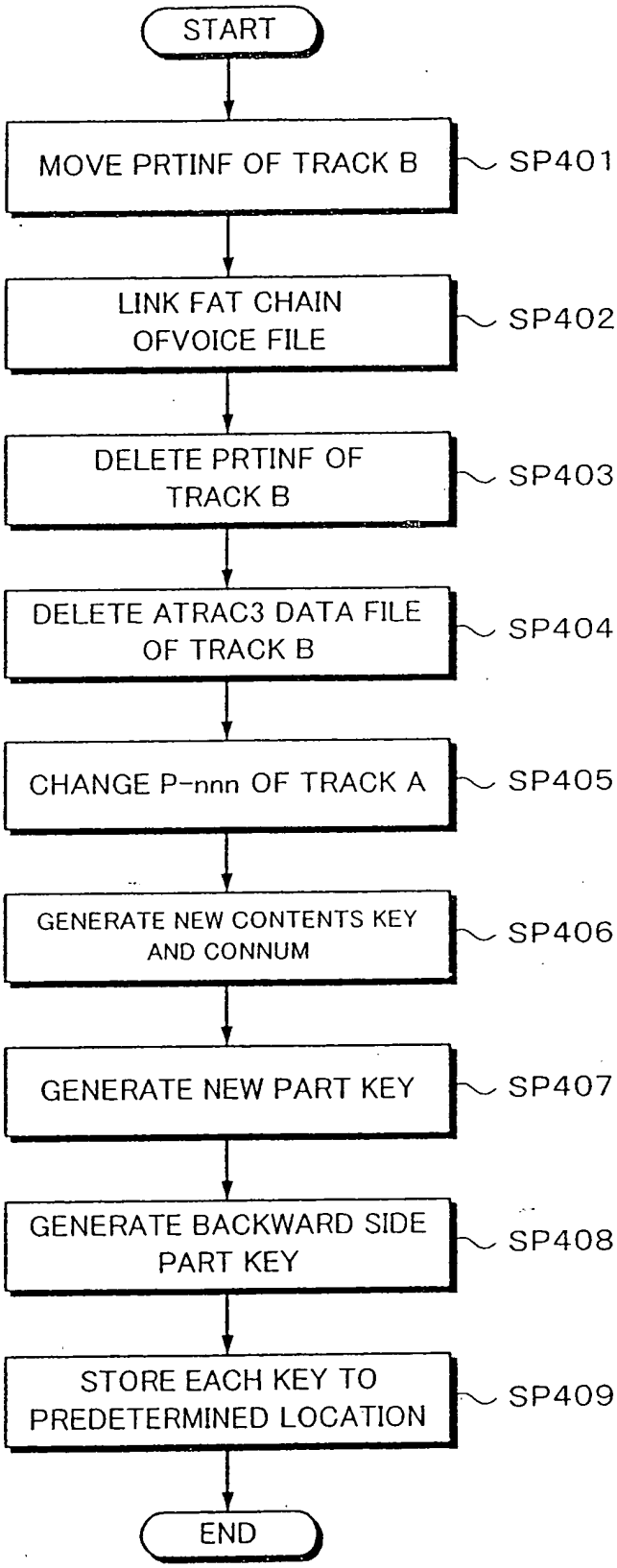

START
MOVE PRTINF OF TRACK B
SP401
LINK FAT CHAIN OFVOICE FILE
SP402
DELETE PRTINF OF TRACK B
SP403
DELETE ATRAC3 DATA FILE OF TRACK B
SP404
CHANGE P-nnn OF TRACK A
SP405
GENERATE NEW CONTENTS KEY AND CONNUM
SP406
GENERATE NEW PART KEY
SP407
GENERATE BACKWARD SIDE PART KEY
SP408
STORE EACH KEY TO PREDETERMINED LOCATION
SP409
END

Fig. 41

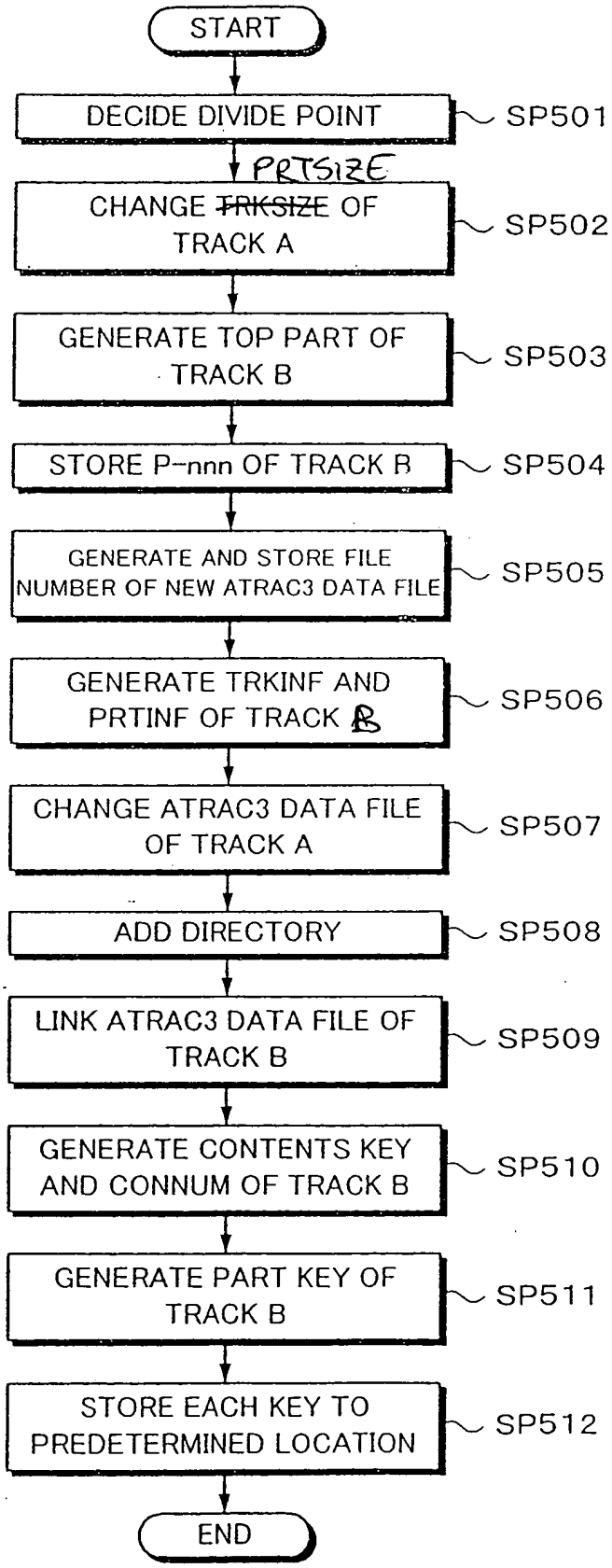

START
DECIDE DIVIDE POINT
SP501
PRTSIZE
CHANGE ~~TRKSIZE~~ OF TRACK A
SP502
GENERATE TOP PART OF TRACK B
SP503
STORE P-nnn OF TRACK B
SP504
GENERATE AND STORE FILE NUMBER OF NEW ATRAC3 DATA FILE
SP505
GENERATE TRKINF AND PRTINF OF TRACK B
SP506
CHANGE ATRAC3 DATA FILE OF TRACK A
SP507
ADD DIRECTORY
SP508
LINK ATRAC3 DATA FILE OF TRACK B
SP509
GENERATE CONTENTS KEY AND CONNUM OF TRACK B
SP510
GENERATE PART KEY OF TRACK B
SP511
STORE EACH KEY TO PREDETERMINED LOCATION
SP512
END

Fig. 42A

Fig. 42B

Fig. 42C

Fig. 42D

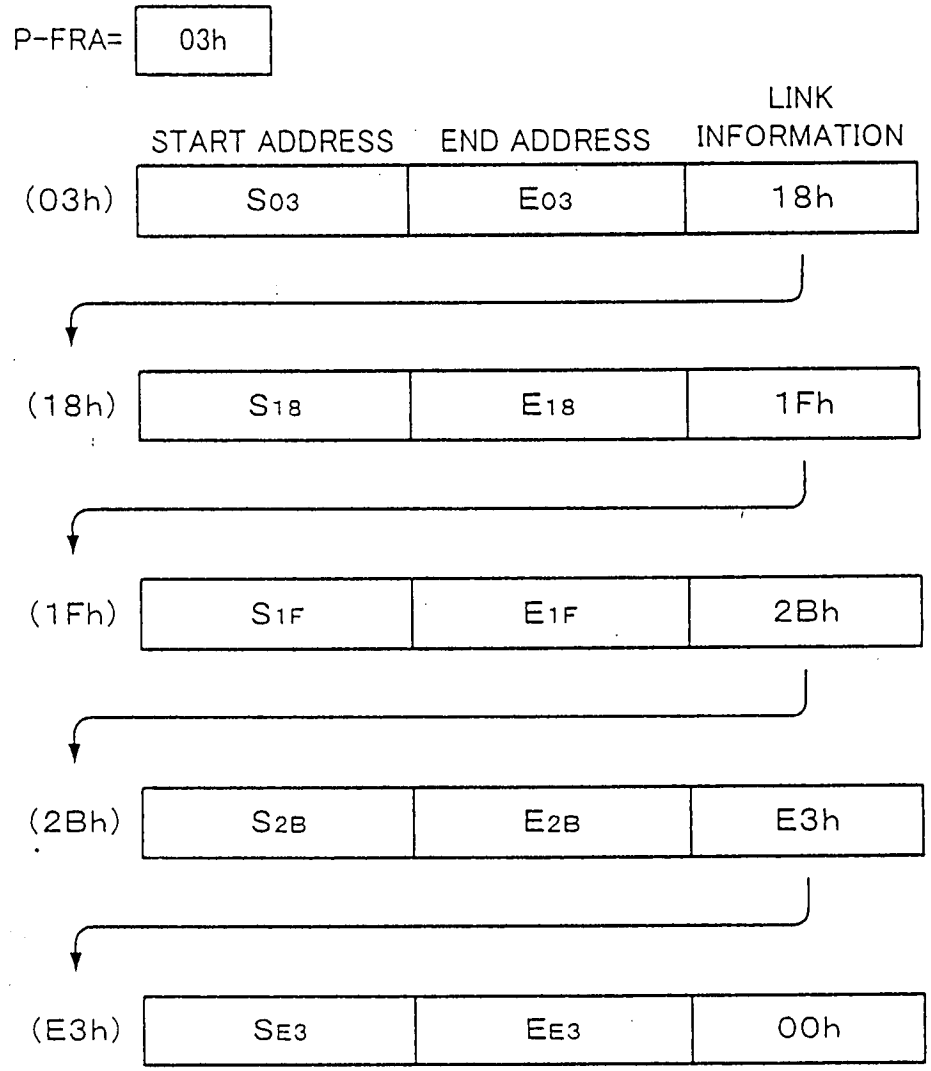



Fig. 42E